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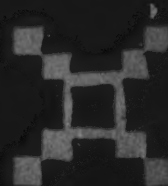
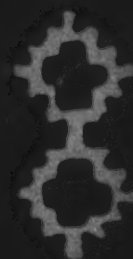
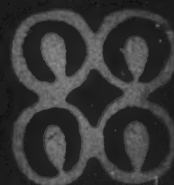
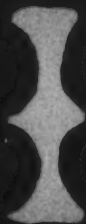
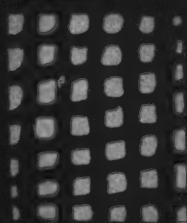
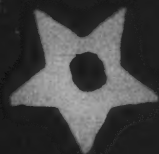
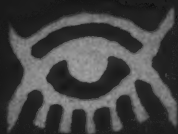
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ABSTRACT

The Threshold Project examined the nature of the language and learning difficulties that black Standard Three (Std 3, or grade 5) children in South Africa experience when they change from their mother tongue to English as a medium of instruction and learning, a policy known as "delayed immersion." This report focuses on the first major objective of the project; i.e, to establish the nature and extent of the linguistic abilities of the black pupils in Std 3, together with a further analysis of the pupils' learning needs. An overview of the history of language testing is first presented, and then the testing conducted during the course of the project is described. Results of an extensive array of specially designed tests showed that the present generation of junior primary children cannot handle the medium transfer. The results of the testing are examined within the larger parameters of the curriculum. The second part of this report describes the nature of the learning task the child faces, with reference to recent trends in bilingual education, the development of communicative language skills in a second language, and the implications for in-service teacher education. Finally, an analysis is presented of what the implications of having different language policies would be on present attempts at curriculum revision. Recommended areas for future research are offered. Contains approximately 100 references. (LB)

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“How many years
do you have?”
English language
skills evaluation

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PREFACE

The Threshold Project has its beginnings in a pilot project that was conducted in the Institute for Research into Language and the Arts in 1985. It emerged from this early research that black children are experiencing difficulties with the change of medium of instruction in their fifth year of schooling. At first glance it may have seemed that these difficulties arise purely as a result of ineffective language teaching methods. However, the complex nexus of factors that constitutes black primary education required a closer look at different aspects of the teaching-learning situation.

The Anglo American and De Beer's Chairman's Educational Trust Fund agreed to provide funding to the Institute for the Study of English in Africa to commission a three year project on the problem that had been identified. The research was undertaken under the project leadership of Dr C.A. Macdonald of the Division of Sociolinguistic and Psycholinguistic Research.

In the course of the project, a broad range of tasks was covered, including language testing, cognitive developmental research, materials development, and observation of classroom practices. The results of the research are contained in the five final reports and a main report which attempts to contextualise that understanding reached in the larger social situation in which the research was located; there was also a serious endeavour to locate the research in the context of state of the art thinking in specific aspects of education, language teaching and testing theory, and the cross-cultural cognitive developmental research. The intention behind this broad endeavour is open to questions of educational theory and practice for further discussion and research on an academic level, and also to provide a knowledge base for serious thinking on developmental issues in the rapidly changing situation in Southern Africa.

The HSRC expresses its sincere appreciation to the Chairman's Fund for its funding of such a seminal project, and to the Institute for the Study of English in Africa for the invaluable part which its representatives played on the advisory committee of the project.

A final word of appreciation goes to Dr Carol Macdonald for the important role that she played throughout in the planning, conducting and completion of this groundbreaking project; also to Dr Rose Morris, under whose aegis the major part of the project was conducted.

K.P. PRINSLOO
EXECUTIVE DIRECTOR: IRLA

NOVEMBER 1989

ABSTRACT

The superordinate problem that the Threshold Project has addressed itself to is the nature of the language and learning difficulties that Standard Three (Std 3) children experience when they change from the mother tongue to English as a medium of instruction. The concern was to conceptualize the research in such a way that would facilitate the design of coherent and constructive strategies for change. The current report addresses the first major objective of the report, i.e. to establish the nature and extent of the linguistic abilities of the black pupils in Std 3, together with a further analysis of the pupils' learning needs.

In the first section of the report there is an overview of the history of language testing, which sets the context for the description of the testing done on the project. The nature of the testing changed through the course of the project, and while we started with discrete point tests based on items that teachers edited, we later carried out more innovative tests based on the task demands of using textbooks, for example, as well as resorting to testing comprehension through the medium of the mother tongue in order to establish more clearly precisely what the child can understand. The results of an extensive array of specifically designed tests showed that the present generation of junior primary children are not competent to the challenge of the medium transfer. It seems that the children are not achieving very well even in terms of the rather modest demands made by relatively well-developed courses. A third course, which has extremely high face validity, has not yet been sufficiently evaluated to see whether the learners are more competent in relation to the learning demands of Std 3 (the fact that it was not evaluated empirically is a function of developmental reasons, with the Std 3 children only using the course for the first time in 1989).

The results of the testing are contextualised within the larger parameters of the curriculum; the so-called "current", "expected", and "feasible" scenarios are discussed with reference to the larger perspectives of the project findings.

In the second part of the report, an attempt is made to try to describe the nature of the learning task the child faces, firstly with reference to recent trends in bilingual education, the development of communicative language skills in a second language, the specific characteristics of using English as a medium of instruction, and the implications that all these areas have for in-service education in our context.

The report ends with an analysis of what the implications of having different language policies would be on present attempts at curriculum revision, and finally with a summary of areas for future research and development. We are concerned that the developmental progression from the notion of English as a second language to English as a medium of instruction should be clearly conceptualized, with the changing nature of the child's learning task clearly demarcated: such an enterprise can inform curriculum developers and course writers simultaneously. The research and analysis conducted on the present project has served to open up the area for future in-depth research and development.

EKSERP

Die oorkoepelende probleem wat die Threshold-projek aangespreek het, is die aard van die taal- en leerprobleme wat st. 3-leerlinge ondervind wanneer hulle van die moedertaal na Engels as onderrigmedium oorskakel. Die probleem was om die navorsing op so 'n wyse te konseptualiseer dat dit die ontwerp van sinvolle en konstruktiewe strategieë vir verandering sal vergemaklik. Dié verslag handel oor die eerste groot doelwit van die navorsing, naamlik om die aard en omvang van die taalvermoëns van swart leerlinge in st. 3 vas te stel, saam met 'n verdere ontleding van dié leerlinge se leerbehoeftes.

In die eerste afdeling van die verslag is daar 'n oorsig van die geskiedenis van taaltoetsing, wat die agtergrond skep vir die beskrywing van die toetsing wat tydens die projek gedoen is. Die aard van die toetsing het deur die loop van die projek verander: ofskoon die vertrekpunt aanvanklik diskrete punttoetse was wat gebaseer is op items wat onderwysers geredigeer het, het die navorsers later meer vernuwend toetse toegepas wat byvoorbeeld gebaseer was op die taakvereistes om handboeke te gebruik, asook om begripvermoë deur medium van die moedertaal te toets om presies vas te stel wat die kind kan verstaan. Die resultate van 'n uitvoerige stel spesifieke ontwerpte toetse het getoon dat die huidige geslag junior primêre kinders nie bevoeg is om die uitdaging van die mediumoorskakeling te hanteer nie. Dit lyk asof die kinders nie baie goed presteer nie, selfs in terme van die nogal beskeie eise wat die betreklik goed ontwikkelde kursusse aan hulle stel. 'n Derde kursus, wat uiters hoë siggendigheid het, is nog nie voldoende ge-evalueer om te bepaal of die leerders die leereise van st. 3 meer bedrewe kon hanteer nie (die feit dat dit nie empiries ge-evalueer is nie, is die gevolg van die ontwikkeling van die kursus, aangesien die st. 3-kinders die kursus in 1989 vir die eerste maal gebruik het.)

Die resultate van die toetsing is gekontekstualiseer binne die groter parameters van die kurrikulum; die sogenaamde "huidige", "verwagte" en "uitvoerbare" scenario's word bespreek met verwysing na die groter perspektiewe van die projekbevindinge.

In die tweede deel van die verslag word 'n poging aangewend om die aard van die leertaak te beskryf wat die kind moet baasraak, eerstens met verwysing na onlangse tendense in tweetalige onderwys, die ontwikkeling van kommunikatiewe taalvaardighede in 'n tweede taal, die spesifieke eienskappe om Engels as 'n onderrigmedium te gebruik, en die implikasies wat al hierdie terreine vir indiensonderwys in ons konteks inhou.

Die verslag eindig met 'n ontleding van die implikasies van verskillende taalbeleide vir huidige pogings tot leerplanhersiening, en uiteindelik met 'n opsomming van terreine vir toekomstige navorsing en ontwikkeling. Die navorsingspan beskou dit as belangrik dat die ontwikkelingsprogressie van die gedagte van Engels as 'n tweede taal tot Engels as onderrigmedium duidelik gekonseptualiseer moet wees, en dat die veranderende aard van die kind se leertaak duidelik afgebaken moet wees: so 'n onderneming kan terselfdertyd nuttig wees vir

kurrikulumontwerpers en vir kursusskrywers. Die navorsing en ontleding wat in die huidige projek uitgevoer is, het daartoe gelei dat die terrein vir toekomstige dieptenavorsing en -ontwikkeling oopgestel is.

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CHAPTER ONE

INTRODUCTION

The superordinate problem that the Threshold Project has addressed itself to is the nature of the language and learning difficulties that Standard Three children experience when they change from the mother tongue to English as a medium of instruction.

We were concerned to conceptualize our research in a way that would facilitate the design of coherent and constructive strategies for change. It was felt that this would be best achieved by focussing on five interrelated factors, namely, the linguistic difficulties experienced by the children, thinking styles which might be culture specific, problems with content subject textbooks, disparities between English learned as a subject and English as required across the curriculum; and finally, school-based learning experiences. These factors were formulated into five main objectives, which became the foci of organization for the Threshold Project. The objectives are as follows:

1. To establish the nature and extent of the linguistic abilities of the Black pupils in Stds 2-3. *This objective is addressed, along with further analysis of the pupils' learning needs, in the present report.*
2. To establish in some detail the nature and extent of pupils' cognitive capacities using a model of natural thought which has implications for curriculum design. This objective is addressed in the report entitled *Reasoning Skills and the Curriculum*.
3. To develop a description of the present expectations of syllabus makers and textbook writers regarding the competence in English of children in Std 3 who are beginning to learn their subjects through the medium of English, and to relate such a description to the content of two lower-primary English courses in such a way as to illuminate possible disparities between the English and content-subject courses. The corresponding final report is entitled *Disparities between Std 2 and Std 3 demands*.
4. To establish the contribution of school-based learning experiences to the present lack of abilities of children in Std 3. The corresponding final report is entitled *School Based Learning Experience*.
5. To produce guidelines or principles intended to inform syllabus makers and curriculum developers. The corresponding final report is entitled *The Consolidated Main Report*, which will also make reference to the previously mentioned four final reports, along with two others, one to do with primary science, and the other to do with language policy.

This report addresses the first major objective of the project.

In the first part of this report, the focus will be on the empirical testing of the skills of present Std 3 pupils. The context of the project orientation is set in Chapter Two which comprises a brief review of types of language testing; in the following chapter there is an overview report on the skills tested on the Threshold Project, followed by a general discussion of the significance of the findings which is contained in Chapter Four.

The second part of the report comprises a broad needs analysis of the language learning situation of the lower primary child. In Chapter Five we look at recent general trends in bilingual education, and this is followed by a discussion of the development of communicative language skills in a second language, in Chapter Six. The next chapter is concerned with skills specific to English as a medium of instruction, and Chapter Eight spells out implications of the previous three chapters' discussion for teacher education. The penultimate chapter describes the differential effects of English language policy on the curriculum, and finally, in Chapter Ten, we lay out the recommendations for further research and development.

At this point we should alert the reader to the fact there is no one summary of conclusions in this multi-faceted report. To enable the reader to process coherent units, the following may be suggested:

- * Chapters Three and Four form a natural unit for the reporting and interpreting of the project research results.
- * Chapters Six and Seven go together in trying to assimilate the state of the art thinking in second language teaching, and learning through the medium of English.
- * Chapter Eight spells out some of the implications of these previous two units for in-service education; Chapter Nine is a self-sufficient presentation on language policy.
- * Chapter Ten spells out what could be drawn together from all the research and analysis that would be constructive and useful for further development in this problem area.

CHAPTER TWO

AN OVERVIEW OF THE THEORY OF LANGUAGE TESTING

In order adequately to discuss the current situation in second/foreign language testing, it will be helpful to review briefly the history of the development of language testing theory and practice over the last several decades. Spolsky (1978) identified three major historical trends in language testing:

- * "prescientific" - prior to the 1950's
- * "psychometric-structuralist" - 1950's to 1960's
- * "integrative-sociolinguistic" - late 1960's to date, developing what is known as proficiency-based or communicative language testing

In the first, prescientific period, the dominant paradigm of teaching was grammar-translation and reading orientated, and teachers found it both acceptable and adequate for their purposes to present pupils with passages for translation from or into the target language, and exercises on grammatical points. There was little concern about or attention paid to psychometric characteristics of testing activities such as reliability and validity. (These were supposedly the concern of psychometrists measuring more classically psychological traits.) Even though the issue of validity was not directly addressed, we may be fairly certain that the types of tests used could not have served to measure validly the pupil's ability to make use of the language as a means of functional communication in real-life situations outside of the classroom setting. This was simply because the teaching did not serve to facilitate this type of functional or communicative competence, and therefore the testing was unlikely to do so. Modes of teaching and testing have always been intimately connected. At this stage, the strong assumption was that anyone competent to teach the language was also competent to test the language.

The second period, the "psychometric-structuralist", is considered by Spolsky (ibid) to have evolved in a large part from the work of Lado (1957, 1961). Lado's approach closely paralleled the then current structural-analytical approach in linguistic theory. What was considered of relevance to language teaching from linguistic research was information from contrastive analysis studies comparing selected target language to English with regard to both phonology and syntax (Ferguson, 1962-1965); different semantic and pragmatic systems were not compared, as many of the analytical tools had not yet developed. In the contrastive analysis approach it was considered important to formally teach only those particular features of the target language that were predicted (through contrastive analysis) to pose potential learning problems for the pupil. Lado (ibid) made a natural extension from this teaching approach to claim that the most effective and efficient way of teaching pupil's language performance was by limiting the testing activity to the same points of difficulty.

Testing formats were not much more focussed than in the first period: the "discrete point" (one tested element per test item) approach has a number of carefully developed formats, for example,

- * the oral discrimination of phonemes,
- * recognition or productional control of specified lexical items, and

- * the perception of syntax-mediated meaning differences in otherwise identical utterances/sentences.

The psychometric, discrete-point testing tradition still has its adherents today; for example, the Initial Evaluation Test (designed by the HSRC) for black children in Stds 2, 3 and 4 is a discrete point test that is to be used as a crucial instrument in evaluating the success of an innovative language programme this year. From the point of view of testing functional language competence, the discrete point approach does represent some advance on the first tradition in that it explicitly addresses the pupil's ability to perform a number of specified tasks in the L2. However, the discrete point test cannot of its very nature measure the learner's ability to comprehend or produce holistically a larger or more natural corpus of language material than that represented by individual-element test questions. However, discrete point testing may be expanded to include lengthier, more naturalistic "real-life" exercises which have been tailored to isolate specific items at different points. In this case, we may be approaching more holistic testing, but at the price of using text varying in authenticity.

A significant criticism of the discrete point testing paradigm is "political": in its purest form, discrete point testing requires the services of highly skilled technicians (psychometrists or statistically trained linguists) to develop what are usually normative, standardized tests. The teacher is then placed in the role of assessing her pupils against an external standard; she does not have power vested in her to assess the efficacy of her teaching¹.

The expansion of discrete point tests led up to large-scale dissatisfaction with the theoretical underpinnings of this testing approach (Clark, 1983). Structural linguistic theory came under fire in the early 1960's, and so it is natural that it would come under fire as the underlying basis for language testing. As Clark (*ibid*, p.432) succinctly puts it:

Contemporary linguistic research held that the use of language for real-life communication involved a creative act in which the whole of the communicative event was considerably greater than the sum of its linguistic elements. As a result, the adequacy or effectiveness of the communication could not be adequately assessed through individual evaluation of its component parts.

Assessment procedures deriving from the new linguistic orientation (which incidentally was not isomorphic with the then dominant paradigm, transformational generative linguistics), designed to determine the learner's ability to carry out more globally-oriented language tasks, have come to be referred to as "integrative" techniques. Oller was one of the first proponents of the new

¹ In a seminar discussion at the HSRC on 7th June 1989, Peter Winograd of the University of Kentucky reported on the tyranny of standardized reading test scores in local US schools; when he heard that standardized tests are rarely used in South Africa, his comment was that it did not automatically follow that individual teachers are able to accurately assess their pupils language learning progress.

approach. Clark (ibid) reports that over a period of several years after 1970 he and a number of graduate students and assistants (Oller, 1972, Oller and Inal, 1975) designed a number of experiments on the "cloze" technique, in which the learner is required to resupply individual words systematically deleted from a continuous printed text². In addition to the cloze procedure, other integrative tests developed were traditional dictation (Oller, 1971, 1979; Fishman, 1980), as well as a "reduced redundancy" task in which aural clues are reduced by white noise (Spolsky, 1968).

Since in our reporting of our project tests we do not include a theoretical justification of the techniques, a description of the cloze procedure and dictation will be given here. The *cloze* procedure may be defined simply as the systematic deletion of words from a text (Alderson, 1979). Cloze tests are supposed to provide an accurate measure of the student's ability in a second or foreign language. The validating criterion is usually performance on a well-standardized test (Hughes, 1980). Since the development of the procedure by Taylor (1953), there has been consensus that it constitutes a reliable and valid measure of readability and reading comprehension for native speakers of English. More recently it has been widely used in EFL research, and Oller (1972) has seen cloze as relating more to dictation, and reading comprehension than to traditional discrete-point tests of grammar and vocabulary. However, there is not general consensus about this interpretation. For example, Alderson (1979) considers cloze to relate more to tests of vocabulary and grammar than to reading comprehension.

There are three variables which are important in the use of cloze.

1. Text difficulty
2. Scoring procedures
3. Deletion frequency

The text used must clearly be related to the level and type of text which the student is expected to be able to deal with. (For example, there have been conversational cloze tests designed as predictors of ability to take part in a conversation i.e. Hughes 1980, Brown, 1983.)

Scoring procedures of cloze in EFL commonly allow as correct either synonyms of the deleted word, or semantically acceptable replacement, as well as the originally deleted word. Allowing semantically acceptable replacements (SEMAC) produces highest correlations with the ELBA (English language battery tests)³.

² This procedure was originally developed by Taylor in 1953 to measure reading proficiency in English as a native language - a new notion of readability of the text too, had evolved.

³ The English Language Battery Assessment Tests were developed at the University of Edinburgh by Elizabeth Ingram to identify intermediate to advanced ESL learners who would be capable of using English as a medium of instruction in tertiary level education (Alderson, Krahne and Stansfield, 1987).

Depending on the purpose of the test, the deletion frequency may be random or rational. If the purpose is to determine the reading difficulty of the text, then random deletions of every 5th, 7th word etc, may be made. If however, the purpose is to test specific grammatical forms or vocabulary items then "rational" deletion is more appropriate. It seems that the choice of procedure will radically affect the claims one can make about the nature of the skill being assessed. For example, if one assumes that more words function syntactically than cohesively, a random deletion would tend to sample the larger proportion of clause-bound words, and therefore appear to be measuring only lower-level skills. On the other hand, one could specifically choose words which index discourse cohesion, for example, anaphora, lexical repetition and logical connectors. In this case the cloze test may be seen to measure higher order, discourse skills (Bachman, 1982).

One might perhaps construct a test which assesses syntactic and semantic elements in discourse both at the sentential and cross-sentential level which one supposes would give the reader access to the conceptual world of the author. However, it would seem that cloze is less suitable as an indicator of the understanding of ideas conveyed by the encoder (Foley, 1984). The understanding of ideas probably includes skills over and above those assessed by cloze.

It seems that if one is very explicit about the way a cloze test is designed it could be a useful diagnostic tool. Primary children are familiar with filling in words, but only in individual sentences: hence it may be that they are not adept at estimating missing items in larger stretches of discourse. Nevertheless it may still provide us with useful information.

The use of *dictation* can be justified in terms of psycholinguistic processing constraints, as well as in terms of recently developed test procedures. In psycholinguistic terms it can be regarded as a specific test of short term memory. However, because of the structure that syntax imposes on a string of words, we find that dictation is a rather special kind of memory task. Memory span is limited by the number of "chunks" it can hold, where "chunk" is a meaningfully coded unit. We can remember about eight unrelated words, but sentences of up to 20 or 25 words, depending on the nature of the sentence. This suggests that constituents and their interpretation play a central role even in the immediate verbatim recall. Also, short term memory does not simply store the order of words as they arrive in the ear. In recalling unrelated words, people often interchange pairs of items in the sequence, and the same happens in recalling sentences. Finally, it seems that short term memory doesn't record exactly what it hears, but edits out commonplace occurrences such as hesitations and repetitions (Clark and Clark, 1977).

Oller and Streiff (1975) regard dictation as a test of grammar-based expectancies. They articulate their view in terms of a constructivist model of speech perception and information processing (Chomsky and Halle, 1968; Lieberman, Cooper, Shankweiler and Studdert-Kennedy, 1967). These models view comprehension of speech, in the same way as other perceptual activities, and that is as requiring active analysis-by-synthesis, thus (Cooper, 1972, p.4):

All of these models for perception ... have in common a listener who actively participates in producing speech as well as in listening

to it in order that he may compare ... [his synthesis] with the incoming [sequence]. It may be that the comparators are the functional components of central interest ...

Oller and Streiff (op cit) suggest that the comparator is a grammar of expectancy. On this account the perceiver formulates expectancies or hypotheses concerning speech based on an internalized (semantic, pragmatic and syntactic) grammar of the language. If the learner's grammar of expectancy is incomplete (as it would be in our target population), the kinds of hypotheses that he will accept will deviate substantially from the actual sequences of elements in the dictation. When learners convert a phrase like 'scientists from many nations' to 'scientists' imaginations' and 'scientists' examinations', an active analysis-by-synthesis is clearly apparent. If we assume that dictation activates the learner's grammar of expectancy (which Oller and Streiff assume is the central component of his language competence) then the findings that dictation scores correlate highly with overall language proficiency scores is perfectly explicable.

In a more recent modification to traditional dictation, Huffman (1983) found that using a partial dictation on a cloze format was an elegant way to get data that correlated highly with final grade scores, and diagnostic examinations. Huffman claims that the use of a partial dictation resolves four of the most persistent problems in foreign language testing as expressed by Carroll (1980) viz. relevance, acceptability, comparability, and economy. Given a course with an oral emphasis the pupils' ability to decode information presented aurally and encode it in writing should give them a sense of achievement and at the same time test their global proficiency.

It seems as though similar claims have been made for cloze and dictation tests as integrative measures. Our own experience on the Threshold Project with four different cloze tests has shown us that these tests are extremely difficult, and the results (because the scores are so negatively skewed) are difficult to interpret. However, given the plausible psycholinguistic explanation of these techniques as adequately testing listening comprehension proficiency, it would seem worth investigating children's competence on texts through which they have been instructed.

Although the three integrative techniques mentioned above go further than discrete point testing in making the pupil derive meaning cross-sententially, they all fall somewhat short of representing genuine communicative activities since the skills would rarely be at issue in real-life language use settings. These three techniques can therefore not be said to have content validity relative to real-life language use. They have also been referred to as "pragmatic" tests (cf. Oller 1979) insofar as they have cross-sentential reference as well as a relationship with extralinguistic context. Other tasks, such as essay writing also qualify as pragmatic tasks.

Since the time the Spolsky (1978) article was written, increasingly wide interest has been shown, and a variety of developmental activities carried out, in an area frequently referred to as "direct proficiency testing"; this involves the design and use of assessment techniques which require the examinee to perform functionally oriented language tasks in situations that approximate as

closely as possible the conditions under which these tasks are carried out in real life settings. One of the high profile current procedures is the American Foreign Service Institute oral interview. An interview was decided on as appropriate to the language demands to be made on people working for the Foreign Service. The range of skills is banded into six levels, with five intermediate levels. The following description of level two would seem to bear some similarity to the Threshold Level as defined by the Council For Europe (van Ek, 1976):

Able to handle routine social demands and limited work requirements.

Can handle with confidence most social situations including introductions and casual conversations about current events, as well as work, family, and autobiographical information; can handle limited work requirements, needing help in handling any complications or difficulties; can get the gist of most conversations on non-technical subjects (i.e. topics which require no specialized knowledge) and has a speaking vocabulary sufficient to express himself simply with some circumlocutions; accent, though often quite faulty, is intelligible; can usually handle elementary constructions quite accurately but does not have thorough or confident control of the grammar.

The advantage of specifying so tightly the parameters of the level is that course planners can develop their focus on teaching lexis (vocabulary), syntax, discourse, themes and situations very specifically: however, the planning will have to be anchored from an evaluation of the course outcomes to the target description. Of relevance to our situation would be a specification of what a child starting Std 3 would have to be able to handle in order to handle English as the medium of instruction - in a child-centered context, many of the above specifications above might well be apposite.

Communicative language testing can also become a valuable tool in the hand of the teacher, and it may be possible to combine immediate learning that pupils have experienced with authentic situations in what Omaggio (1980) has called "hybrid" tests. These tests combine grammar and context, structure and situation into testing exercises that, while limited to the specific structures and general areas of lexis dealt with in the course, reflect real-life communication situations to the greatest possible extent. For example, as a text of lexical control, an exercise in which the pupil is asked to write to a pen pal on a topic for which the vocabulary has been prepared would be much more communicatively valid than writing out a series of unrelated sentences involving the same vocabulary items.

The above example would make a great deal of intrinsic sense; however, Omaggio's (ibid, p.29) real contribution has been on a conceptual level in developing guidelines for developing testing activities incorporating the "hybrid" principle. These guidelines are reproduced in full here, since we would consider them to be both child-centered and culturally sensitive (cf. the School-Based Learning Experiences Final Report), and therefore worthy of careful scrutiny in the testing aspects of course development and in teacher education:

1. The situation depicted is relevant and immediately useful to the language

- learner;
2. the content reflects the level of sophistication of the students and their knowledge of the world;
 3. the language is, at all times, natural, respecting the 'conditions of elicitation' of certain types of structures in natural language use;
 4. answers required of students have 'truth value' [that is, do not involve imaginary or contrary-to-fact responses from the student's own perspectives];
 5. characters used in [test] items are 'realistic', in that they have personality and relate to the learner's experience in some way;
 6. items respect sociolinguistic norms;
 7. the language sample is short enough so that the students have little difficulty remembering it, but long enough to provide the necessary context.

Clark (op cit) suggests that an important caveat to this testing approach is in order. He feels that while the testing exercises Omaggio suggests quite closely approximate the general proficiency testing activities, they are not true proficiency tests in that their content is limited to those linguistic aspects that have been dealt with in the course of instruction. He suggests that there should be periodic administration of a genuine proficiency criterion such as the FSI-type interview for cross-reference and comparison purposes, as otherwise the class tests will come to over reflect the pupils' performance on an external proficiency test. Perhaps one way of preventing this would be to widen the domain of the tests, including more semantic fields as they are covered in instruction.

According to Clark, there would seem to be three major advantages to an Omaggio-type communicative orientation. Firstly, classroom exercises and testing situations come as close as possible to approximating natural language settings. Secondly, communicative testing procedures seem to correspond more closely with teachers' natural assessment tendencies than do discrete point or integrative tests. (This purported advantage may not obtain well in the South African situation where our observation suggests that discrete point testing is rampant: however, this is not to say that teachers would not feel comfortable with communicative tests if they were properly inducted into their method of preparation.) The third advantage that Clark adduces is that communicative language tests increase pupil interest and motivation when compared to less realistic techniques. This one would expect in terms of a child-centered philosophy, where the child best approaches activities that have an intrinsic interest for him. Strangely, Clark accords this benefit a lower priority than a number of other testing considerations.

Three general criteria for drawing up communicative tests have been outlined by Harrison (1983): the first is that the language used in the test should be used for a purpose beyond itself. (The purpose is not simply to display language in order to have it assessed.) The second criterion is that the test should depend on the bridging of the information gap; there should be a need in the speaker or listener to tell or to know - this purpose can be fulfilled by the use of a skill. The third criterion is that the test should constitute an "encounter"; the situation should change or some transition should occur as a result of using language. The key word that encompasses these three criteria is PURPOSE. Once

again, the motivational effects of such testing enterprises might well make testing meaningful to learners, in the same way that communicative language tasks also make learning more meaningful (cf. also Chapter Seven).

One of the issues in the proficiency testing literature was whether language proficiency is a unitary phenomenon or not. Statistical tools used to argue for the position were found to artificially shape the data, and so hopes of being able to design "unitary" tests have foundered. As Oller (1980, p.142) puts it:

The hope of simplicity ... has been lost ... If we examine language proficiency from a point of view of communicative effect, it has a kind of holistic quality that cannot be denied. On the other hand, if we begin to try to understand what is meant by communicative effect and how this holistic quality is achieved, we find ourselves on a road with many junctions.

As Spolsky (1983) admits, while the notion of an overall language proficiency is very compelling, this proficiency might be made up of very different functional abilities. If we are prepared, as Ellis (1986) is, to take language proficiency to mean something very similar to language competence or communicative competence, then we have conceptual resources of linguistics to draw on in addition to more conventional testing ones. Another way of broadening our perception of what appropriate tests might constitute may be derived from a needs or task analysis of the learning situation (and a general task analysis is undertaken in Part Two of this report). A further extension of the psychometric model of testing can be found in changing the evaluative criteria from reliability and validity to *relevance, acceptability, comparability and economy* (Carroll, 1980):

- * Relevance: how relevant is the behaviour being tested to the meeting of communication needs?
- * Acceptability: will the users of the test accept its content and format?
- * Comparability: can the test scores obtained at different times and from different groups be compared? (this seems to parallel "reliability")
- * Economy: do the tests provide as much information as is required with the minimum expenditure of time, effort and resources?

The *kinds* of tests which we can generate, bearing in mind Harrison's (op cit) criteria and Omaggio's (op cit) guidelines could have at least three dimensions: language skills, levels of analysis, and kinds of situational competence viz.

<u>Language skills</u>	<u>Levels of language analysis</u>	<u>Kinds of situational competence</u>
Reading	Phonological	Sociolinguistic
Writing	Orthographic/phonic	Strategic
Listening	Lexical	Paralinguistic (including body language)
Speaking	Collocational/ idiomatic Syntactic Cohesive Coherency	

This matrix - primitive as it is - generates 56 combinations as it stands, and then each element can be tested at different levels of difficulty and in combination with other items from its own dimension. It is not intended that this matrix actually be used to generate the potential variety of tests: it is only presented to illustrate the sophistication with which we have to approach the task of appraising Spolsky's "very different functional levels". So for example, one could develop a listening and writing test that assesses understanding and use of cohesion and coherence in a specific sociolinguistic situation (bearing in mind that the task should have meaning and purpose for the child). A test oriented across the curriculum would look like this⁴:

Tape:

Traffic Officer: Hey you, there, stop! Now, did you know that you rode through that red light?

Henry (cyclist): I'm sorry, sir, I know I should have stopped. But I was thinking about something else, and I'm in a hurry.

Traffic Officer: Well, yes, but you could get killed, riding like that. It was a very stupid thing to do.

Henry: Yes, I know, but my mother is sick, and I am going to fetch her medicine at the chemist. Look, here's the prescription. And I also have to buy food for supper, and my aunt is waiting at home to help with the cooking.

Traffic Officer: Hum, but your mother and aunt would be very sorry to hear that you had been knocked down by a taxi, wouldn't they?

Henry: Yes, they would. I'm sorry.

Traffic Officer: Well, this time I will let you off with a warning. But you must be more careful, even when you are in a hurry.

Sample Questions: (answers to be written down)

1. Why did Henry go through the red light?
2. Does Henry know that he should stop at a red light?

⁴ The idea for this test came from one in Carroll and Hall (1985), but it has been strongly edited: for one thing South African traffic officers have a style quite unlike their English counterparts!

3. What does the traffic officer say could happen to Henry?
4. Where is Henry going?
5. How does the traffic officer know that Henry's mother is sick?
6. What is Henry's aunt doing at his house?
7. Does Henry have to pay a fine?

It may well be useful in our situation to develop the notion of proficiency levels in oral (spoken and heard) and written (read and written) discourse in order to have a measure to appraise the efficacy of courses at different levels in the school curriculum. At the more specific level, integrative-pragmatic or hybrid-communicative tests should be included within course packages, and should be introduced to teachers as part of their professional training.

The final general point that should be made about language testing, which applies to language teaching in general, is that attitude and motivation should somehow be measured as well. As Oller (1979) points out, emotional or affective factors may even be more important than cognitive factors (especially teaching methods). To our knowledge, attitude and motivation is very poorly understood in relation to ESL testing, and furthermore, conventional wisdom from psychological testing situations might well have to be adjusted depending on the cultural background of the L2 learners.

To summarize what we have discussed in this chapter, we might say that:

- * in the last fifty years there have been three major trends in language testing, the "prescientific", "psychometric" and "integrative-sociolinguistic", where the last has broadened specifically into proficiency, communicatively-based language testing;
- * modes of teaching and testing have been intimately connected at every stage;
- * the movement continues towards the evaluation of the learner's ability to comprehend or produce holistically an authentic corpus of language material;
- * productive examples of integrative or pragmatic language tests include cloze and dictation;
- * in the last decade there has been particular interest in direct proficiency testing, where proficiency can be banded into levels which constitute targets for language programmes or courses;
- * for our purposes hybrid-communicative tests which use classroom-based material in authentic tasks would be a good model to adopt, and Omaggio's guidelines for these tests are both child-centered and culturally sensitive;
- * the complexities of attending to different aspects of language skills, linguistic levels and situations simultaneously should not be underestimated;

- * proficiency levels could be developed as a means of evaluating course outcomes, whereas integrative-pragmatic and/or hybrid-communicative tests could well find their place within courses, and as part of teacher education.

CHAPTER THREE

SKILLS TESTED ON THE THRESHOLD PROJECT

3.1. INTRODUCTION

In 1985 a pilot study was conducted in the Psycholinguistics Division of the IRLA, on the problems the black Std 3 child has in attempting to use English as the medium of instruction (EMI). Any full attempt to understand the situation would have had to include a range of teacher, pupil and systemic variables, but this was clearly outside the scope of a pilot project. Thus the research, which was carried out in Department of Education and Training School in Soshanguve addressed only three questions in a narrow way:

- 1 What are the skills of the Std 3 child in English-as-a-subject when compared to the syllabus?
- 2 What are the skills of the Std 3 child in Sepedi-(Northern Sotho)-as-a-subject when compared to the syllabus?
3. What are the skills of the Std 3 child in English and Sepedi in relation to the demands of the language across the curriculum? In other words, what is the competence in English language skills required in subjects such as History, Geography, Health Education and Mathematics?

With regard to the first question we need to clarify the basic issue of whether children could tackle tasks at the level of their own language books. However, there is the critical problem (cf. the Disparities Final Report) of the disparities between the register of Std 2 level language books and the register of Std 3 content subject books. Compare for example:

Once upon a time a man and his young son went to town. They took their donkey with them. The son sat on the donkey and the man walked beside it. They met some people on the road. (New Day-by-Day Std 2 English reader - final story).

Although the peasants suffered a lot, many people thought that this (feudal) system was right and proper. Many people thought that it was right to keep order. Both the rich people and the poor people were Christians and they were taught that each person had a special place in God's kingdom on earth. (Time for History:Std 3)

By the end of Std 2 the syllabus expects the children to comprehend simple graded readers, a level of competence far below that required for Std 3 texts.

The second question related to an evaluation of the children's competence in their mother tongue. There appeared to be little research done on the child's ability to deal with vernacular reading, writing, speaking and listening. It would be a genuinely deep crisis if children could not deal with these skills even in their mother tongue.

The third question related to the child's competence across the curriculum in

both his mother tongue and English. A researcher who is not au fait with primary school practice might question the validity of asking the child to do Geography tasks etc in the mother tongue when the school expects him to do them in English. However, observation in the township classrooms soon puts paid to the illusion of the exclusive use of English from Std 3 onwards. Teachers use the mother tongue widely to help their children understand the many new and difficult concepts they have to deal with.

The results of the pilot tests conducted in one Soshanguve school with 102 Std 3 children (average age of 12 years) are presented briefly. It should be noted that these tests were without exception discrete point tests, and the results should therefore be interpreted conservatively - i.e. in terms of whether there was a difference of the type identified in the three questions, rather than ask about the nature of the differences. In the five English subject tests pupils scored between 18% and 45%. On the three multiple choice tests, an inflation factor of 25% could be expected (where the choice is one in four) so the average subjective mark of 26% would seem to be accurate. In other words, the children were not competent on their Std 3 English syllabus work. The teachers who helped to edit the tests reported that an average mark of 45% was not uncommon in the promotion examination which they set. Our assessment would seem to be more stringent than that of the teachers.

On the four Sepedi subject tests, which were all multiple choice, the marks ranged from 56% to 78%. The teachers who helped construct and edit the tests reported that the average mark for Sepedi in the promotions examinations might be as high as 75%. Since the teachers were responsible for the setting of these tests, they would appear, with one exception, to be at a standard usually set for the child. Unfortunately, due to an ignorance of Sepedi, the project leader could not moderate these tests personally.

Turning now to the bilingually administered Content Subject tests, the results are most easily interpreted from a table (see Figure 3.1 below).

SUBJECT	MEDIUM	
	ENGLISH AVERAGE %	SEPEDI AVERAGE %
1. Geography	28	42
2. History	35	54
3. Health education	12	49
4. Maths:story sums	23	32
5. Subject vocabulary	49	82

Figure 3.1 *Content subject pilot test results - bilingual forms (Macdonald, 1985a)*

The Health Education test was a productive cloze test, and on this we found that the children were almost completely unable to do the task.⁵ In fact they did not even do it well in their mother tongue. The conventional wisdom is that unless subjects score at least 40% on a cloze test for a text, this text is *not suitable for the child to learn from, even with the help of the teacher*. If this is indeed the case, then we have reason to be concerned about the children's ability to use their textbooks adequately, even with the aid of their teacher. Children from a nonracial convent who have learned through the medium of English since Grade 1 scored nearly 80% on the same test, so they are clearly able to work with such a text (and they had not had the advantage of having the lesson taught about the text).

The children in general found the geography test (which concerned gold mining) more difficult than the history test (which concerned the wreck of the Harlem). It was our contention, looking at the geography and the story sum tests, that where the children found the content difficult even in their mother tongue, the difference in scores between Sepedi and English were rather less than when the content per se was not difficult.

The highest scores were gained on the Subject Vocabulary Test, in which children were asked to match word, phrase, or sentence label to pictures. They were able to identify most of the pictures in the mother tongue. The pictures which presented the most difficulty were the more "ethnic" pictures, including for example, a Bushman hunter, Bushman hunting weapons, and articles made from grass. The test was not very demanding linguistically insofar as the child was likely to get the item right if he could identify one or two words of the description; he did not have to fully comprehend the syntax. The receptive scores here were a great deal higher than the productive scores in English would be. On pilot testing a small number of children orally, we found that they could scarcely describe any of the pictures in more than one word of English.

In general terms we can say that the children always did better at content subject tasks in their mother tongue. However, the difference between the scores depended on the subject, and the inherent difficulty of the task. We could not therefore give a single index of how much poorer their English competence was relative to their mother tongue competence. But in general terms, we could be certain that their linguistic competence in English is significantly poorer than in the vernacular.

One final but important observation was one which was only made possible by the design of this case study. We were in the unusual situation of being able to see the identical lessons being taught in two languages to two different but equivalent groups. This means that we were in a position to watch the classes reactions to the situation. It was clearly and unequivocally the case that there was a great deal less tension in the Sepedi classrooms. There was no look of glazed fear on the children's faces. They looked far more alert and they were far more willing to attempt an answer to a question than in the equivalent lesson in English. This effect would most clearly be captured in a video

⁵ A Health Education text was selected since they are the simplest in terms of language and vocabulary, and in concept, closest to the child's experience.

recording of such parallel lessons. However, the best we could do in that situation was to take photographs of children answering questions in the two languages - in the EMI class there were very few hands. In the equivalent Sepedi class, nearly all the hands went up. It was the strong conclusion of the 1985 case study that we are putting Std 3 children through a painful experience by making them learn through the medium of English when they are not adequately prepared to do so: we are giving them the experience of failure, not only in terms of marks, but also in terms of coming to grips with important concepts.

3.2 QUALITATIVE RESULTS OF RESEARCH 1985-1988.

There were two principles espoused in our orientation to testing. One of them was that, by and large, children should not be tested on concepts that have not already been taught in English. We held to this principles from the simple classroom introduction of the story used in the productive cloze tests in 1985, as well as history, geography and health education lessons which were first taught by the teacher, then to the teaching of 20 science lessons in 1987 and 24 lessons in 1988. This principle would seem to be sound, since the children are usually not asked to work unaided on texts, whether in English as a subject or English as a medium. However, there will come the time when they have to use texts independently, and they should be working towards that. If the educational system is moving towards the introduction of more independent activity-based methods, then the children will have to learn to use texts on their own. In any event, they will have to do so in secondary school. A gradual introduction to independent use would seem to be pedagogically sound.

The second principle that we started out with, and then modified, was that we should give children familiar work and formats for their tests, in order to find out if they can do what they are supposed to have learned to do. However, further into the project, we were trying to find out what children could do on tasks that differed rather from their conventional school formats, but involved skills that we supposed undergirded the ability to deal with authentic school tasks. The gradient of familiarity-unfamiliarity eventually became part of our project theory about the kinds of tasks we think ought to be in the curriculum (cf. Chapters Four and Seven below).

It would be tedious to report in detail upon the performance of the children on nearly twenty tests that we developed (cf. Figure 3.1 for a list, and rough categorization of these tests). These tests were not standardized but each was developed because we had a specific skill in mind, for example, can the children answer low level inference questions? Do they understand the nature of textbook conventions? Having asked such specific questions at the time we were interested in them, it is now our task to integrate the findings in a way that will give an answer to the question: *Are the Std 3 children adequately prepared to use English as a the medium of instruction with the language skills currently at their disposal?* In the following section we describe our findings in terms of the four modalities which most usefully qualify as descriptive categories: writing, reading, oral skills and listening comprehension. The standing of tests such as dictation and cloze are taken as having been described in Chapter Two above.

Summary of language-related tests that were conducted

TEST	TARGET GROUP
a. <i>Lexis</i>	
1. Productive vocabulary (children describe textbook derived pictures in sentences) ⁶	PEUP
2. Vocabulary for science module (English and mother tongue); labelling pictures of parts of the plants etc. Pre- and Post test	PEUP, Convent
b. <i>Concepts/skills</i>	
1. Plant structure growth and reproduction concept test (English and mother tongue); written answers to questions that gave information and required low level inferences	PEUP, Convent, DET
2. Mapwork and direction (English and mother tongue); performing simple tasks concerning direction and mapwork after being taught the concepts.	PEUP, Convent
3. Science Process Skills (individuals, in the mother tongue); solving simple problems set on plant growth and reproduction which required the use of process skills	PEUP
4. Doing story sums (individuals, in the mother tongue); solving Grade Two level word problems while giving reasons for their solutions.	PEUP, Convent

Figure continued overleaf

⁶ The tests, unless otherwise specified, were conducted in class groups in English.

c. **Syntax**

- | | | |
|----|---|---------------|
| 1. | WH-Questions (the Bonzo Test);
Factual questions based on a story +
picture text. | DET, PEUP |
| 2. | Dictation (Grade 2-Std 3 texts)
Writing paragraphs dictated at normal
speed by native Setswana speaker. | PEUP, Convent |
| 3. | Cloze vs C-test (Bushrat and Townrat)
Short narratives with two different
types of deletions. | PEUP |
| 4. | Testing textbooks (C-tests of 8 texts)
Two sections each out of eight science
textbooks that were set up in c-test
format. | PEUP |

d. **Discourse**

- | | | |
|----|--|--------------------|
| 1. | Cohesion test (individual)
Reference, substitution and ellipsis
on short texts. | PEUP, Convent |
| 2. | Anaphora test (Alfred and the spider)
A cloze test with reference items
supplied in boxes at different points
of the text | PEUP, DET |
| 3. | Coherence test (Animals and Man,
individual) Questions on the
understanding of different coherence
conventions as used in a science text | PEUP, Convent |
| 4. | General reading comprehension ("I didn't
think of it!" English and mother tongue)
Two different forms of a written test, one
with inference questions, the other with
factual questions. | PEUP, DET |
| 5. | Building stories (mother tongue,
individual) Stories with(out) pictures
in individual sentences to be reconstituted
as coherent text. | PEUP, Convent |
| 6. | Samples of writing (one sample of guided
writing, the rest authentic classroom
work) | PEUP, DET, Convent |
| 7. | Samples of speaking: the first was using
the Bilingual Syntax Measure, also free
speech and interview data. | PEUP, DET |

Figure 3.1 *Summary of language-related tests that were conducted*

a. *Writing skills*⁷

The following samples of good and poor writing from the end of Std 2 will serve to introduce the theoretical remarks that follow. First we have an example of weak writing:

a seller

A sell sells things He sells bananas, bread and coal drings. at Saurday a seller going to buy fruit and all things the seller dust the cupboat. the are many things buy in the chop. My Mother give Me money.

Next is an example of the best free writing that we could get from a school that uses the New Day by Day English scheme. (It should be noted that none of the schemes requires children to write completely without guidance, but for the purposes of evaluation, the schools require this.)

A visitor to the school

Mrs Evens is a visitor to my school. She is a guide Teacher. There are many guides. She come every Thursday. She come with a car. She sells the clothes for the Girl Guide. She come with the food. She inrollmenet the guide.⁸

These short essays are sufficient to give the reader an impression of the kinds of writing that the children are capable of. However, a structured exercise that was conducted in 1985 will serve to illustrate details of the problems that children experience. I had given a class of Std 3 DET children a page which had a story picture sequence entitled Going to the hospital to see Siphoh. It came from the Std 2 Language Book in the Day-by-Day series. I led the (Std 3) class discussion on the pictures and put up a list of vocabulary on the blackboard which was volunteered by the pupils, and also supplied by myself. (The list was left on the board while the children wrote their story.) The children were encouraged to write whatever they thought appropriate as a story.

⁷ The description which follows is based upon data derived from schools within the Department of Education and Training (Northern Transvaal Region) and the Primary Education Upgrading Project of the Bophuthatswana Education Department, and occasional reference is made to comparative data which we obtained from church schools with a racially open admission policy.

⁸ Following the writing of Mungubhai (1986), who purported to show the influence of the "Shared Book Experience" approach to reading on writing, we were interested in getting examples of free writing of Std 2 Bridge to English children. However, the only samples we could get to date were copied parts of their readers. However, the course itself does not emphasize free writing, as it is seen to fossilize errors.

A model answer with the minimum structures and vocabulary is presented in order that the reader can more easily see what is being left out or where the problems are with a typical text.

GOING TO THE HOSPITAL TO SEE SIPHO

James went to a shop to buy some oranges. Penny picked some flowers out of her garden. The two children wanted to visit their friend, Siphon, who was in hospital. They walked down the road and came to the door of the hospital. Here they saw a nurse and a doctor. They found Siphon's ward and gave him the oranges and the flowers. James sat down on a chair, and they talked to Siphon. When they went, Siphon ate an orange, and the nurse put his flowers in a vase.

Here is an example of one of the compositions which was handed in:

1. James bay the oranges
2. Penny pick the flowers
3. James and Penny goiw to hospital
4. James and Penny wi go in to the setaps
5. Penny gave Siphon flowers and James set on chers
6. Siphon it the oranges and Nurse get the flowers in to the bowl.

By and large the writing of children is marked by immaturity in terms of the absence of certain structures as well as the incorrect use of other structures. There are a large number of structural problems - only a few are described here. There is the absence of first person singular marking on the verb, absence of the copula TO BE in the present progressive, absence of the progressive marker in the present tense, duplication of the subject with the third person pronoun, no anaphoric pronouns, absent or incorrect use of prepositions, limited use of conjunctions apart from and, and very little use of complex noun phrases, incoherent or absent paragraph structure, and finally, a high incidence of misspelled words. It should be noted that many of the syntactic errors are highly predictable in terms of the grammatical structure of the African languages themselves. Only one of the courses, Bridge, takes contrastive analysis as a point of departure for the introduction of particular structures. The undeveloped discourse structure which is so prevalent is a function of non-attention to these in the language schemes (except once again for Bridge). Teachers themselves teach peculiar notions, so that their children will tell you for example that "a paragraph is five lines!"

By contrast to the painful writing of the average child, the children using the IBM Writing to Read laboratory found reading a natural and pleasurable experience. Here is an example of what a Std 1 child wrote for me the day that we visited the laboratory:

OUR VISITOR

Our visitor is coming to visit us at the laboratory. The name of our visitor is Carol.
Our visitor like the children very much.
I like Carol very much.
Carol is not the black one.
I can answer her questions about any book.
Carol, what do you enjoy most in our lab?

This delightful little essay is designed to entertain, rather than inform, the reader: however, it must be said that this system encourages writing right from the beginning of the course, and therefore children soon develop confidence with connected discourse - although not expertise at it. Even in the mother tongue competence with discourse features only develops in middle childhood - perhaps by nine or ten years⁹.

A written vocabulary test was developed from a receptive vocabulary test that was used in the pilot stage of the research in 1985. The receptive test was administered as follows: the children were given pages with nine pictures on them and had to match the pictures with numbered flashcards that were presented individually. The pictures were taken out of a range of Std 3 textbooks and they covered concepts that the children could reasonably be expected to have formed in class. In the original test, the children scored 83% on the mother tongue, and 48% in English.

A subsample of 30 of the original 56 pictures was selected. There was no consistency between the 30 pictures; some were diagrammatic, some realistic, some abstract. Some pictures were contextualised and others not, with the contexts varying from the general to the specific; sometimes only parts of the whole were depicted; x-ray type pictures (e.g. of bones) were also included.

When Van Rooyen (1987) analyzed the results initially, she gave children credit for an attempt at explaining the picture in some way that was understandable. On this criterion children scored between 40% and 50% on average. However, what was more revealing was the error analysis of a subsample of the scripts (30/265 scripts). Van Rooyen does not comment on mother tongue interference (since this was beyond her competence at the time), but she does discriminate between three general classes of error:

1. imperfect mastery of conventions of written English which may or may not be complicated by mother-tongue interference;
2. lexicon-grammatical errors;
3. errors of perception and errors regarding relevance.

Under *writing conventions* there are spelling errors, the incorrect use of

⁹ Here is an example of Grade 2 writing from a child writing in her mother tongue: I love and I always will and please stop the bombs from going off and help the people in hospitell too get better soon and the Siamese-twins to grow-up poor to get some money.

punctuation (including the incorrect use of capital and small letters). The influence of mispronunciations can be discerned in the spelling errors (e.g. they or the instead of there, leave instead of live, dack instead of dark). In punctuating, children run sentences together or abruptly terminate them, using a full stop where only a comma would be acceptable (e.g. I see a food it is a broken bone, and I see a water, and I see a pompie). Some children seem to use capital and small letters indiscriminately or interchangeably while others start each line with a capital letter, irrespective of where the sentence begins (e.g. It is the skull and the spine, the skull is Protect the skin.)

Looking at *lexicon-grammar* errors, the first salient problem noted concerns vocabulary: the children used words inappropriately, or made up words (e.g. for the picture of a hare - this is a rots the rots as liker a rotes is in the mounten). Secondly, there were indeterminate or garbled structures, incorrect word order, determiner, number, concord, copula, preposition and conjunction errors, and avoidance strategies. The quaintest example of avoidance was the description of a fine-looking owl sitting in a branch as I see a tree with leaves; but the prime examples of "total avoidance" were the 120 completely Sepedi sentences¹⁰.

Van Rooyen (ibid) distinguishes two levels of error from a communicative point of view, i.e. those errors that seriously hamper the understanding of what the children wrote, e.g. lexis errors, and errors that do not affect the comprehension of the reader e.g. spelling and determiner errors. Van Rooyen points to the importance of the control of a measure of syntactic complexity which is markedly absent in the writing she analyzed. As far as we could determine, teachers have a firmly grammar-translation view of error - it is there to be identified and rooted out: they tend to mark for grammatical errors rather than communicative effectiveness.

Quantitatively, lexis problems formed the largest percentage of all the errors made (25,5%), and determiner errors were slightly fewer (22,4%); following this was concord and singular/plural errors (18,25%). The children from the best PEUP school had a wider vocabulary than the children from the other two schools.

In an analysis of ESL factors correlating with academic achievement, Saville-Troike (1984) found that the single most important factor is vocabulary. She monitored children of several nationalities and mother tongues over a one-year period. Correlations between children's initial English ability, final English ability, syntactic command, vocabulary range, interaction with other people and academic achievement were examined. It was found that children speaking highly inflected languages quickly acquired English syntax, but that these children did not necessarily achieve better academic (scholastic) results. Vocabulary range was the only consistent factor correlating with achievement: the wider the vocabulary range, the better the academic results. If this study is applicable in our situation, it would seem clear that the children are being placed at a disadvantage by having a relatively limited vocabulary in Std 3. However, the

¹⁰ This choice of children to write something meaningful about that which they recognized, but could not describe in English, is in some measure an index of the frustration of using English as the medium of instruction.

relationship between sight or written vocabulary and specific concept formation must indeed be complex and could well warrant further investigation.

What is more serious than error is the marked immaturity of the structures and vocabulary that the children are able to use. The adequate explanation of any of the content subject concepts requires a rich vocabulary, complex syntax, and the ability to logically link ideas.

b. Reading skills

A number of tests on reading comprehension were conducted. The overall findings are especially disquieting in that it is particularly difficult to determine exactly what the children understand since their productive English skills are so poor. We were able to establish:

- * that they cannot answer low-level inference questions from a simple Std 2 text (when they are in Std 3), nor indeed more traditional factual questions from the same text. There is always much copying of irrelevant bits of text even when the exercise has been supported by rich pre-teaching;
- * that children find English connective devices difficult or confusing. (Indeed, who would have thought that one could identify eight distinct uses of and in English. In this regard Rose Morris (personal communication) has made the interesting observation that one should teach highly contrasting logical connectors before those that have vaguer meanings; and,
- * that children cannot find their way around expository text very easily, because of the differing conventions when compared to the more familiar narrative text structure.

We should like to be able to explain something more about the context of such observations.

One of the first linguistic tests administered in 1986 included a reading comprehension test. A Std 2 Day-by-Day story entitled "I did not think of it!" was slightly adapted, the story being about a man who goes to town with his two children, by car, and comes back by bus, forgetting his car in town. Fifteen low level inference questions such as "Why did Mr Tema have to go to town by car?" and "Why did Mr Tema drop all his things when he got home?" were asked. A Std 2 MAPEP poster was used to activate background knowledge and teach the necessary vocabulary. Since this was text easier than text children are exposed to in Std 3, we expected them to achieve at least 60%. However, the scores we got from the initial group of children (DET) were as low as 20%. It was clear that this test was not giving us useful information, so a revised test was devised. The lower level inference questions were replaced by factual questions such as "How did they go to town?" and "Where did Mr Tema leave the car?", and a Legotown that was built for a productive oral test was used to consolidate vocabulary and to enact the story before the questions had to be answered. Two versions of this 'new' test were used. In the mediated version children were taken through the poster, the Legotown and the comprehension questions before they answered the questions on their own. In the 'unmediated' version children had to answer the factual questions on their own with no further help or added information. This 'mediation' did not really help the children (although they

seemed to enjoy it very much), and the results were still disappointingly low: the very best children in the PEUP system could only score 60% on the test while Std 1 children at a open school were able to score 90% on the unmediated version.

It was clear from this test that the children's reading comprehension relative to the task demands of Std 3 is very low indeed. We thought that the scores might be depressed because children did not understand WH-question words. To determine their comprehension of these words, a test was developed - the Bonzo test - which we report on now.

The Bonzo Test was based on a reading text from Bridge to English *Grade 2* pupil's book. The text is as follows:

This is Bonzo. He is a hunting dog. Bonzo is in the long grass. He is hunting rabbits. He sees a rabbit. The rabbit is sitting on a rock. The rabbit sees Bonzo. It runs into the long grass. Now Bonzo is running after the rabbit. He does not see the big hole. Bonzo falls into the hole. Bonzo is barking. The farmer and the men are running to the hole. "Get a long rope!" says the farmer. Now a man is running to get a rope. The farmer jumps into the hole. He holds a rope in his hand. The farmer has the rope in his hand. He has Bonzo under his arm. "Pull me up!" says the farmer. Now the men are pulling the rope. The farmer and Bonzo are up. "Thank you for helping me save my dog!" says the farmer. Bonzo barks. He is very happy.

There is a picture accompanying every two sentences, and the speech is placed in speech bubbles in the pictures.

Each child received a text with pictures, and then a very similar text with the questions placed above the pictures (that is, adjacent to the text to which it refers). The testing was done quasi-naturalistically, with the tester reading through the story and discussing the pictures with the children. The results were disappointingly low - between the five schools, the range was from 42% to 73% (in the best PEUP school). We found that there was a distinct order of difficulty in understanding these words where who is the easiest, and then what, where, why, how and whose. Yet, these forms are taught early in the lower primary school. Difficulties with why indicate that children have difficulty answering questions about purpose and cause, which are concepts basic to clear thinking. There seemed to be some kind of interactive effect, insofar as "easy" WH questions were able to be answered even when the answer was not directly in the text. In other words, the children were able to make very simple inferences if they had an idea of the basic meaning of the term.

We thought that we could not find any easier connected text: indeed, it was surprising to find such a long piece in the first year of English instruction. However, later in the project, we worked with text per se and we could see the essential limitation of the Bonzo text, insofar as the child would have to make essential connection between the pictures and the sentences before the text made complete sense. Clearly, this is an area that would need further investigation - the nature of early text-picture interaction.

The anaphora test was designed to test children's comprehension of referential pronouns. Halliday and Hasan (1976) state that anaphora is the simplest form of cohesion. It was thus expected that children in Std 3 would be capable of understanding and producing anaphoric pronouns.

A short story entitled Alfred and the spiders was written, in which 20 anaphoric pronouns were deleted. Each deleted pronoun/possessive adjective was either heavily cued or allowed for more than one alternative, e.g.

- a) "Wake up Alfred," Mother said. "It is time for you to get up."
Alfred opened _____ eyes slowly and looked around.
- b) (the spider) is a very strange animal. It likes to live in _____
warm houses. " _____ have seen one in _____ garage, Mrs Malefo,"
Alfred said.

There were several versions made of this task¹¹. In the version we report on here, the deleted items appeared above each paragraph. The children had the "model" answer read to them twice, so that they could hear a coherent story. The results across the seven schools ranged from 42 to 70%, and thus must be compared to the results from an open school's group, i.e. 98% in Std 1 and 100% in Std 3. Hence, in terms of information processing, the items are thoroughly predictable for the open school's group, while the PEUP and DET children are still using up information processing space on what is very simple anaphoric reference. Van Rooyen (in Macdonald, 1988a) concludes that specific attention should be paid to learning about anaphoric reference, since complex forms of this occur in subject textbooks.

As part of the Disparities Analysis, Van Rooyen was interested in establishing children's control of different aspects of cohesion. Let us start by looking at the nature of *cohesion* (Halliday and Hasan, 1976: 298-9):

The general meaning of cohesion is embodied in the concept of text. By its role in providing 'texture' (properties which make a set of sentences a meaningful whole), cohesion helps create text.

Cohesion is a necessary but not sufficient condition for the creation of text. What creates text is the TEXTUAL ... component of the linguistic system, of which cohesion is a part. The textual component as a whole is the set of resources in a language whose semantic function is that of expressing relationship to the environment.

The cohesive relationships available to the speaker or writer of English to express such relationships to the environment are reference, substitution, ellipsis, conjunction and lexical cohesion. These devices are used in the text

¹¹ The version we report on here gave the highest scores. The different formats were used to see how they would affect the child's performance: we discovered, for example, that to give one paragraph's options at a time was easier for children than putting all the options at the top of the text.

to make explicit not only the relationships to the real world and the knowledge in and of it, but also the more remote textual relationships between parts of the sentences themselves.

Current language testing trends favour testing language items in context as opposed to discrete items. The cohesion test started as a comprehension test applied to cohesive text on the one hand and to an "incohesive" text on the other. Shorter cohesive vs incohesive paragraphs were considered because not all the children are competent enough yet to process longer pieces of English text. It is impossible to write text with no cohesive markers - at the very least lexical cohesion naturally occurs within a topic. We finally decided to test the three main forms of cohesion on discrete items, so that we were certain that children were focussing on the correct item; naturally special attention was paid to the language and context of those sentences (no child found the situations unfamiliar, but the meanings of words frequently had to be explained to them). The items can be summarized as follows:

Reference

1. No reference in sentence. John and Peter were running along the road. John tripped Peter.
- 2/3. No potentially distracting antecedent between the referent and the real antecedent. Paul and Andrew were walking along the road. Paul tripped him.
4. Potentially distracting antecedent between the referent and the real antecedent. Paul and Thabo were running along the road. Thabo tripped him. He started to cry.
5. Ambiguous referential pronoun. Simon and Peter were running along the road. He tripped him.

Proforms

1. Indefinite pronoun as proform. There is a glass in the kitchen if you need one.
2. Demonstrative pronoun. Sarah said that she has ten dogs and eleven cats. I don't believe that.
3. Pronoun and pro-complement. Last week our teacher was ill. This week she is still the same.
4. Pronoun and propredication. Rex is barking at me. He always does so.
5. Pro-clause. Michael didn't find a job in the city. He told me so yesterday.
6. Lexical substitution. Blackie sat on the table. The little furry animal ate everything on the plates.

Ellipsis

1. Medial ellipsis of predicate of co-ordinated clause. Water the beans in tin A and * tin B.
2. Ellipsis of clause. You can borrow my pen if you want to.
3. Ellipsis of to-infinitive. Someone has to help. Lets ask Ben *.
4. Ellipsis of object co-ordinated clauses. Helen is the eldest girl but Jane is the tallest *.

5. Final ellipsis in comparative clause. Angela likes Chris more than Monica *.
6. Medial ellipsis of subject verb in comparative clause. Angela likes Chris more than * Monica.
- 7/8. Imperative with elided subject. * Look at the picture; * Read the story on page 13.

Three groups of children were tested, from two PEUP schools and a nonracial convent. The children were tested individually, in English where possible, although Setswana was used where necessary to ensure that the child understood the task or to allow the child to express himself with more ease or eloquence. The child would read an item; for example, item four in reference, and then be asked questions like "Who is 'him' in this sentence? Who is 'he' in this sentence?" In general the children found reference the easiest, followed by substitution and then ellipsis. The overall results for the three groups may be seen at Figure 3.3. below.

GROUP	REFERENCE	PROFORMS	ELLIPSIS
Convent	98,8%	98,1%	74%
PEUP 1	78,8, %	63,5%	56,6%
PEUP 2	80 %	58,3%	58,3%

Figure 3.3 *Results of the tests on different types of cohesive devices*

The reference items could be graded as follows: no reference is easier than reference where the referential pronoun follows the antecedent immediately, which is easier than reference where a possibility distracting antecedent is between the pronoun and the real antecedent, which is easier than ambiguous referential pronouns.

The pro-forms could not be rank ordered as neatly as the reference items. Using indefinite pronouns as proforms seems to be the easiest to process, while demonstrative pronouns seem to be the most difficult (although this might have been an artefact of the single sentence situation). Pro-predicate and lexical substitution seems to fall into the category of "easier", and pro-complement and pro-clause into "more difficult", but these categories were not clearly demarcated.

Looking at ellipsis, the easiest was the object noun of a co-ordinated clause, next was the ellipsis of the to-infinitive, and medial ellipsis on a comparative clause was the most difficult. The convent data suggested that children do find medial ellipsis consistently more difficult than final ellipsis.

Van Rooyen (1987b) observed that some of the PEUP children had very little English competence. WH-questions appeared to be a stumbling block for many of them, corroborating the findings of the Bonzo-test (see discussion above). Many of the children also didn't have a well-developed knowledge of English syntactic

structure. Interchanges such as the following illustrate this lack of form-awareness:

Child: (reading) Someone has to help. Let's ask Ben. (silence)
Tester: Let's ask Ben to do what?
Child: ... to do help.

This kind of mistake was often made when doing the ellipsis items. A child would fill the space in the sentence with a word belonging to a syntactic category which could not possibly follow the preceding category in English. Van Rooyen suggests that lack of comprehension of some of the lexical items and of the knowledge of syntax of English would seem to be likely causes of this lack of form-awareness. The quoted example is not a misconception of help but rather a collocation problem with do.

Part of the task of Std 3 is to learn with the assistance of a textbook; this means that the coherence conventions should be within the children's control before or very soon after they start using these texts. Currently the courses used to teach the children do not address any of the conventions of expository text. Van Rooyen (in Macdonald, 1988a) created a coherence task by using a section from a Std 3 science text entitled Animals and Man and making an adapted version, using the best that she knew about so-called "considerate text". The two versions were created so that the following questions could be asked:

- (a) Do children read headings?
- (b) Do they look at pictures if they are (not) explicitly referred to them?
- (c) Do they know why the pictures are there?
- (d) Do they think that pictures are important?
- (e) Can they locate pictures on a page i.e. do they understand the reference conventions?
- (f) Do they read labels and captions?
- (g) Do they answer questions asked in the text?

The children were individually asked to read a text; they were told that they would have to answer questions about it (either version A or B), but they were not cued to attend to anything in particular. The tester and observer watched each child closely to determine whether she looked at the headings, pictures, labels or captions even when she did not read them aloud, and to see if the child compared the two pictures, as she would have had to, if she answered the questions asked in the text.

The results showed that generally children:

1. did not read headings, labels or captions;
2. did not look at pictures;
3. did not answer questions asked in the course of a paragraph, and
4. did not know the meaning of the word "figure".

It seemed that children in Std 3 also did not know what the pragmatic force of the words in brackets is an inexplicit reference to pictures such as "Masked

weavers are small, noisy birds (picture 19)". The PEUP children also did not know the convention of explaining unfamiliar lexical items with synonyms in brackets, e.g. "Look at the beak (mouth) of the weaver." This is extremely important to know, as it is a common device used by ESL writers.

Children from both the PEUP and convent group had various alternative conceptions about the locating of pictures in a text and their importance in a textbook. It seemed that many children had difficulty orienting themselves to the word "below" in the text. ("Above" and "below" do have specialized meanings in text.) Most of the children could actually locate picture 19, but their strategies used to locate it ranged from the expected answer that the picture number underneath the picture identified it, to children matching content of the text with any of the pictures in the vicinity, to a logical argument such as the following:

The first picture has a paragraph above it. Therefore the picture spoken about must be underneath the paragraph with the reference to it.

Children mostly thought that pictures helped them to understand the text better. They did not however, always think it important to look at them. In general results from the two groups showed that the children from the convent knew more textual conventions and could interpret them better than the Std 3's from the PEUP schools. However, both groups had the same kinds of ideas about looking at pictures and their importance in textbooks.

The question arises as to whether writers should bother to use coherence conventions if children are not going to use them: however, coherence aspects such as predictive headings and informative pictures are functional and make reading comprehension easier and more economical if used correctly. They should also help children to use cognitive strategies more easily e.g. What is this text about? What do I already know about this topic? How does this match up with what we have recently learned? etc (cf. Chapter Seven below).

It was decided to test the seven general science textbooks for comprehensibility by using either a cloze test or a c-test, and then this measure was supposed to serve as an independent criterion for the linguistic analysis done of the texts. Because research done on the Comparative Evaluation project (Walker, personal communication) in our same Psycholinguistics Division at the HSRC indicated that the c-test gave a better spread of scores than did a cloze-test, we decided that we should try to corroborate this finding, hoping for sufficient discrimination of the children's limited language proficiency instead of the left skewed curve that generally obtained in our testing.

A text was chosen from the last story of the Std 1 Day-by-Day Reader, entitled Bush Rat and Town Rat. Here is an extract from the beginning of the story:

There was a rat who lived in the bush. His home was in a hole. The hole was under a tree. The rat's name was Bush Rat. Bush Rat had a friend. This friend lived in a town. His name was Town Rat.
[...]

To refresh the reader's memory, the difference between the two test forms would be as follows:

Cloze: There was a rat ____ lived in the bush. ____ home was in a ____.

C-form: The__ was a ra_ who liv__ in th_ bush. His_ home wa_ in a ho__.

Twenty-five children were tested on a c-test form and 25 on a cloze test form. The results are summarized below in Figure 3.4.

	CLOZE TEST	C-TEST
n=	25	25
$\bar{X}$ =	5,96 (29,8%)	12,8 (64%)
SD=	3,4	3,6

Figure 3.4 *Results of the cloze and c-forms of Bush Rat and Town Rat test*

One of the items of the cloze test required the contraction I've to be filled in. None of the children taking the cloze test had this form correct. However, in the c-form, the same contraction was required but the capital I and the apostrophe were provided. Nine children out of the 25 got this item right. This seems to strengthen the argument that a c-test discriminates better than a cloze test. The c-test gives the better result because it is more significant to be able to say that 9/25 children can follow the language correctly given enough language support than it is to say that the children simply cannot do the language item.

In an early multiple choice cloze test designed in 1985, it turned out that children could only score right on the verb TO BE, and the children were not scoring much better than 25%. To replace this test Prof. L.W. Lanham helped me design what was intended to be a cloze test with very supportive, predictive context. On this test, the children scored less than 19%. Later on, in our trial science materials, we put in cloze items as part of developing English across the curriculum: these items were far too difficult for the children, even though they had models (in the form of three parallel experiment descriptions). Hence our association with cloze tests on the project was neither happy nor productive.

While the purpose of the Town Rat and Bush Rat test was to determine the relative results of two different forms of test, there was a further objective along this line of research, and this was to determine whether the textbooks the children currently have access to are comprehensible. Accordingly Van Rooyen (see the Disparities Final Report) took two passages out of each of eight texts and tested them using a c-test. Once again the procedure seemed to be productive, because the range of scores on the different forms ranged from 28% to 80%. Van Rooyen was then able to rank order the texts in terms of their comprehensibility: a preliminary finding there was that the type of text found in Threshold material - low-level syntax, not too many unknown vocabulary items and easily retrievable cohesive devices - seemed to be the most comprehensible. From

this study, Van Rooyen was also able to make two other important observations.

Firstly, contrary to what was expected, the physical science passage was not consistently more difficult than the biology passage. Van Rooyen concluded that the language in which the concept is stated is more important in terms of comprehensibility than is the concept and its abstractness. However, this conclusion has to be understood in the context of early physical science, in which concrete demonstrations can be carried out, analogies and metaphors easily drawn.

Secondly, comprehensibility within one textbook is not uniform because the varying complex concepts, language structures and cohesiveness of passages written - usually - by different authors. The implication of this is that to assess the comprehensibility of one book, one would have to look at representative samples of that book.

Using the c-test enabled the work on the so-called disparities analysis to proceed. However, given the small sample sizes and wide variety in the treatment of topics, it still remains for future research to determine optimum size chunks of text for valid assessment to be made, and the criterion beyond which the child may seem to be able to usefully work from a text. The criterion may well have to be very high, perhaps in excess of 80%, since the Threshold materials scored well between 50-80%, and our observation of the children's use of these materials in practice indicated that they needed teacher mediation for optimum use. Perhaps this latter condition will always obtain in the second language (EMI) classroom. Then probably the most important question is, *what text is usable, given constructive and directed help from the teacher?*

c. Oral skills

The first time we decided to test children's spoken language was with the Bilingual Syntax Measure (BSM) in 1985. The test comprises a series of six pictures, which were adapted for use in the South African context. The children are asked a series of questions about the pictures, the questions supplying the essential vocabulary and cueing critical syntactic markers in the answers. The administration of the BSM is supposed to approximate talking to a child about some pleasant pictures. The child is cued about the language he is supposed to use when the tester speaks the language before and during the administration of the test. All the children spoke English, and did not attempt to switch language ¹². (This use of medium is well-cued in the classroom situation, where the child who answered an English question in Sepedi was laughed to scorn by his classmates: what happens when there are no observers present is a question which we would find difficult to answer.) The tester (a black fieldworker) asked the child his name and age, which were recorded in the test response booklet. In the testing of 20 randomly selected children, only one child understood what

¹² In fact this only ever happened once when we were testing children on their reasoning skills, and a child said that he could not do the task in English and of his own initiative switched over to Sepedi. Otherwise children were very likely to accept the manifest task demands.

"How old are you?" means. The rest of the children only responded to "How many years do you have?", which is a direct translation from the mother tongue. The following year, with other DET children, we had similar disconcerting experiences: it was difficult to believe that it was necessary to have "what is your name?" and "Read this for me" interpreted to individual children by their classmates.

The BSM outlines a procedure for assigning the child to a position on a five point rating scale. Briefly, the levels are as follows:

- Level 1: No English
- Level 2: Reception English only
- Level 3: Survival English only
- Level 4: Intermediate English
- Level 5: Proficient English

All the children in the study were placed at Level 3.¹³ This means that they answered up to six out of a specified (subset of) ten correctly. In the view of the designers of the test, at this level children speak just enough English to "survive" in everyday communication. The test predicts that children will leave out lexical forms such as nouns and verbs, and very often omit or misform grammatical forms and endings. They do not yet know how to use pronoun forms correctly.

This profile does give a brief but accurate description of the oral competence of the children. Without going into any details of answers, a summary of the problems would be as follows:

1. Nouns and noun phrases
 - a. Absence of the plural form
 - b. Absence of the genitive construction
 - c. Incorrect use of determiners
 - d. No complex noun phrases
2. Pronouns
 - a. Incorrect use of the pronoun when it is heavily cued in the preceding question
 - b. Duplication of the subject noun by pronoun
 - c. Incorrect number and gender
3. Verbs
 - a. Coined or inappropriate use of verb
 - b. Absence of modal auxiliaries
 - c. Incorrect marking or absence of the copula
 - d. Absence of the progressive marker -ing
 - e. Absence of the habitual present
 - f. Absence of the third person singular marking

¹³ Although this test was not formally administered in the PEUP system, I did take the test along to the best school, and found that several of the children could have been placed at Level 4.

g. Use of the incorrect tense in discourse sequence

4. Adjectives: a. Incorrect use of adjective as quantifier

5. Use of avoidance strategies

6. Use of Afrikaans forms

The children were unable to deal with those elements intended to discriminate between levels 4 and 5 i.e.

the long plural

the perfect conditional (the counterfactual conditional)

the possessive

the irregular past

(Unfortunately, actual transcripts may not be quoted because of copyright restrictions.)

Dulay and Burt (1974) recommend that the teaching of English reading be postponed until level 4. However, in our situation, it is questionable whether we could delay the introduction of English reading this long, and still have the children able to deal with content subjects in English by Std 3. But, we may be able to get them to level 4 oral proficiency by Std 3. There may be a greater lag between the children's receptive and expressive competence than there would be for minority group American children who are consistently exposed to mother tongue speakers. Our children's understanding may be rather greater than their ability to express themselves in English, either orally or in writing: to change this situation might require nothing less than a change in socio-political structures. By this we are referring specifically to the possibility that they have freer access to mother tongue models of English.

At this stage I can give my own impressions from having taught a number of lessons to different classes. One has to speak rather slowly, and very distinctly (after all, I may have been the first mother tongue speaker they have heard apart from on TV), as far as possible using words that one knows are in the child's passive vocabulary. We have noticed the tendency for the teachers not to simplify their language (indeed this is partly a function of their being ESL speakers); teachers have several times commented on how I simplify mine. However, despite this, one can still cover a reasonable amount of material (without repetition) during a period. For example, I have been able to teach the whole life-cycle of the bean in one period with the aid of eight sequenced pictures.

The spontaneous data from the individual testing of oral skills gives the impression that the children are not used to speaking spontaneously, and that it produces great stress in them to do so. The kinds of mistakes that children make when they are speaking are very much the mistakes they make when they are writing. For example, here is a transcription of a child describing a simple story that he is simultaneously enacting with Lego.

Mr Tema and Mrs Tema and Benny and Betty they go the town. They go to buy the, the shirt and the and the other ... and the other things. Mr Tema and Mrs Tema he goes to town to buy many things. ... Mr and Mrs Tema he park ... They are going to the Edgars. ... They go to buy ... they go to buy for Betty and Benny ... they buy the shirt and broek and other things. Mr Tema and Mrs Tema he come to the car.

The children's language, because it is not imitative in such a situation, appears to be more distorted than the language that is used in the classroom. However, this is no reason for them not to talk: it is the result of their not having had an opportunity to speak. If they had been taught communicatively, speaking naturally, albeit with error, should become in time a pleasurable and productive experience. As it is, the language used in the classroom is largely based on what the teacher has just said, or more rarely, what appears in the textbook. The possibility of the child sharing a truly novel insight through English would seem to be very small indeed.

There does seem to be some considerable variability with the children's oral proficiency: for example, the best Std 3 children in the Mamelodi school were rather better than the Soshanguve children. For example, here is an extract from an informal interview I had with a Std 3 child.

Interviewer: What is your name?
 Child: Nthabiseng
 Interviewer: What does it mean?
 Child: Make me happy.
 Interviewer: And how old are you?
 Child: I am eleven years old.
 Interviewer: And when is your birthday?
 Child: My birthday is on the 9th November.
 Interviewer: And you will be twelve? [...] How old will you be on your next birthday?
 Child: On my next birthday I will be twelve.
 Interviewer: And can you tell me about your family?
 Child: ... I don't know it [prompted] I have two brothers and two sisters
 Interviewer: And how old are they?
 Child: It .. my old sister ... my old sister has fifteen years, and another has 13 years old.

Although the conversation was apparently quite straightforward, the child took quite a long time to formulate her thoughts. Typical characteristics like "making full sentences" as answers, as children have been taught, emerge strongly. The strange responses to "how old are you?" are still marked in the child's spontaneous responses. After this extract, the language starts to break down, almost as though the child is stressed by the effort she has made.

In contrast to this extremely competent Std 3 child, we also had the opportunity of interviewing a couple of Std 1 children, from the same school, who had recently completed the IBM Writing to Read course. We asked one child to tell

us a story (the Std 3 child said she "did not have one"), and we were regaled with a story called Make Way for Duckling, the transcription of which takes a typed page! It revealed a charming mix of learned phrases and interlanguage, all presented very fluently. Then the interview went along more or less as the one described above:

Interviewer: Can you tell me a little bit about your family?
Child: I have my sister and my two brothers, my father and my mother. My mother works at Jet stores. My father don't work. My two brothers work at Technical High School, and my sister gets at Technical too. Right after school when I come home, I find them at home.
Interviewer: And what does your father do at home?
Child: He just listens to the radio and like TV. [...]
Interviewer: And what are you going to be when you are finished school?
Child: I want to be a traffic cop.
Interviewer: Why do you want to be a traffic cop?
Child: To ride a motor-bicycle
Interviewer: Why don't you want to become a doctor?
Child: Some the doctor they get the other sick on people.
Interviewer: They make other people sick?
Child: Well, the doctor, well, the doctor, well, I don't want to be a doctor because the sick on people get onto the doctor and the doctor dies.

This little boy - Gaylord - was very keen to talk to the interviewers, and the conversation proceeded at a normal pace, until we got to the part where he was trying to saying something which he presumably had never said in English before. He offered much more than the question asked for at face value, and seemed free and confident.

This extract of an IBM child's language is offered not so much in the spirit of saying that this is the best course (although it is in many ways remarkable); rather it is offered in the spirit of showing what is possible with children learning the second language. The essential qualities of what the IBM course has to offer would have to be analyzed to try to work out why the children are so fluent and so confident after a year's introduction to English. At this point, we should point out that the interview material basically covered what we later call (Chapters Five and Seven) 'basic interpersonal communicative skills' and does not cover the children's ability to talk about school subjects ('cognitive academic language proficiency') We would expect quite different results when focussing on the two independently. One of the striking differences between the IBM children and the other children, even in the same school, was that the former had entered a "bookfull" world - they had been exposed to more than fifty books in the laboratory, and the children were encouraged to bring books from home to constitute a class library: they had made a quantum leap away from their little cohort groups elsewhere. The other important observation (we have also made this point in the School-Based Learning Experiences Final Report) is that the teachers are hard put to keep up with such competent children, and they were holding them back by using traditional Std 1 classroom material, where these IBM children were easily ready for Std 3 or later materials.

d. *Listening skills*

It is difficult to determine the actual level of listening comprehension in a typical classroom, especially where the so-called Rote Rhythm method is in full swing. This term has been coined on the project for the indigenous version of the transmission teaching method. It has several disconcerting ritualized aspects. For example, very often the pupils don't have to be cued, they repeat spontaneously the last word or structure that the teacher has just said. The children do not have to pay the teacher their full attention. If they go into a cycle of chanting, they can disengage their attention, and the next "sentence-filler" can be filled in by short term memory store. The most worrying aspects of the method is its capacity to mask the absence of comprehension.

Apart from this general observation, we have further reason to believe that children's listening comprehension is not well-advanced (cf. Macdonald, 1988b for a full discussion of the following dictation experiment). By Std 3 children do not have full mastery of Grade 2 text (New Day-by-Day), on a piece of dictation such as that reproduced below, and then decreasing mastery on further texts up to their own grade level.

Mother is sitting on a chair. She is sewing. She is sewing a button on Benny's shirt. The door is open. Can you see Betty? She is playing with a ball. Benny is looking at Betty.

While they do not fully comprehend the relatively simple structures of their readers, children have relatively little comprehension of the technical language of the content subjects (see example below : this text is typical of subject texts in terms of the syntax and use of technical terminology). The absence of comprehension is typically accompanied by the practice of rote memorisation of purportedly simpler teacher notes; these notes themselves lack both cohesion and coherence, and will therefore exacerbate the difficulties of learning with meaning.

Every muscle in your body is able to make some part of your body move. Muscle is made up of special cells that can relax and contract, rather like an elastic band. All muscles are of two kinds, voluntary and involuntary.

When we read this passage to the PEUP Std 3 children, we expected that most of it would be very difficult. The comparative phrase in the second sentence was expected to show some problems, as well as the formal punctuation with two commas. As it turned out, all the lexical words except for body presented some sort of difficulty to the children.

To start with not one child spelt muscle correctly, and furthermore, with a few exceptions, they did not even spell it phonetically: the most common spelling was massim. So it was not clear that the children had any idea what the topic of the paragraph referred to. Able most often went to every, making nonsense of the first sentence. Made up was frequently rendered as make up, and special

cells was often written as one word. Relax and contract were also very difficult to spell, and rather like was often written as one word, or otherwise distorted e.g. rive lay an elastic ben. There was a typical interference in vowel perception in the spelling of band as bent. As we predicted, the children did not know how to spell voluntary and involuntary. They often made distortions, or wrote the syllables as separate words.

The average scores on this passage were 36% and 40% from two schools. However, this does not mean that there was 40% comprehension. Repeated errors were not marked and the children might well not have comprehended the critical lexical words. Support for arguing lack of comprehension comes explicitly from the one child who did best overall, achieving mastery-level scores on the four previous, easier passages, who wrote the passage thus:

Every massing on you body is every to main some pats of you body to move. Massing is make up of sepcialis that can raley and contryced rally like and elastickbank. All masings are of two kinds volytary and involytary.

Although this girl had a placeholder for each word, it seems that the stress of unfamiliar words placed an undue burden on the easier items. For example, she rendered made correctly in the previous passage, but not in this one.

The average score of the open schools girls on this passage was 85%. The errors were rather superficial - minor spelling errors, and the leaving out of the formal convention of the commas in the third sentence. The girls spelled voluntary and involuntary wrongly, and they afterwards said that they did not understand the meaning of these two words.

The use of the dictation test as an integrative test of language performance was clearly demonstrated in the dictation study that we conducted. While it was difficult to determine whether the child did or did not know a word if it was misspelled, gross distortions in a word would seem to reveal this. Even more interesting was the difficulty with specific grammatical structures that is detected. Hence the psycholinguistic testing of the understanding of complex structures was revealed as a possibility.

The developmental picture of the scores is presented below in Figure 3.5. The scores for the lower primary passage were disappointingly low. The children should have been able to demonstrate mastery of this lower level work, and perform better on the Std 3 work. It is difficult to interpret the scores literally - as we mentioned above - because they do not give an accurate picture of the comprehensibility of the answers. For example, the Grade 2 answers are very clear: the errors appear to be superficial. However, even the best Health Education passages would have the reader guessing as to the intended content.

Average %	Grade 2	Std 1	Std 2	Std 3	Std 3
	<--- New Day - by - Day texts --->				Health text
PEUP School 1	63	52	51	42	36
PEUP School 2	68	54	53	44	40
Convent	-	-	-	90	85

Figure 3.5 *Average scores on comprehension passages from the Day-by-Day Scheme*

To try to demonstrate what we mean, the text presented above, is re-presented with the items which seemed to be incomprehensible, removed:

Every _____ on you body is _____ to _____ some pats of you body to
 move. _____ is _____ up of special _____ that can _____ and _____
 _____ like and _____ . All _____ are of two kinds _____ and
 _____ .

Not much information can be gleaned from this, and yet perhaps this is what the best PEUP child really could only understand. It is difficult to be sure.

It turned out that this task was an unfamiliar one to the PEUP children. Hence, because of task unfamiliarity we might expect that these results are slightly weaker than they might otherwise have been. Also we do not know what long term effect the regular use of dictation as a classroom exercise might bring about. It would seem to be a worthwhile experiment to include dictation in an ESL scheme, as it should (as the literature suggests) be a good training technique for listening to discourse. After all, one gets good semantic cues from the context and this may enhance vocabulary learning, especially if adequate feedback is given.

At this point we are not going to attempt to make a summary of the findings of this work: this we will leave for the following chapter, in which we also try to make explicit the status of our findings, and suggestions for future testing strategy.

CHAPTER FOUR

IMPLICATIONS OF THE THRESHOLD TESTING RESULTS

In Chapter Three we tried to give the flavour of the results that we obtained over the course of four years of testing. Instead of giving a sequential description of what we did¹⁴, we tried to give a coherent description of the most revealing tasks and how the children performed on them. In this chapter we have the difficult task of not pre-empting our final conclusions (for these see Chapters Seven to Ten), but staying with the data that we have presented this far. This we shall do in three sections: firstly, we shall present a brief summary of the results presented in Chapter Three, and secondly, we shall talk about the larger purposes of testing in the context of the project aims. The third section will address the shape and purposes of future testing in the transition from junior primary to senior primary.

4.1. SUMMARY OF RESULTS

1. In general we found that children had not mastered text below their own grade level, and this on course material which itself is not productive in preparing children for the specific demands of using English as the medium of instruction.
2. The black children in state school systems consistently scored 30-40% below what children in nonracial schools are capable of: basically the nonracial groups that we tested achieved at mastery level (85-95%) on almost any language task that we could devise. The way in which we would interpret this finding is that the latter group of children, with a high level of English proficiency, have intellectual energy - or cognitive capacity - free to attend to the formal learning demands of their tasks, which include concept and skills development. The black children in the state systems, on the other hand would keep finding that language learning constraints interfere with concept learning. Their attention would inevitably be drawn to the form of what they are learning, rather than the underlying concept and skills.
3. The children's *writing skills* are marked by an immaturity in terms of the absence of certain structures as well as the incorrect use of other structures. There is a high level of grammatical error and the absence of cohesive ties and any notion of coherence. It may well be that the children could benefit from instruction based on contrastive analysis. Children would appear to have a small vocabulary, which is predictable in terms of the fact that they generally do not read anything beyond their school texts.

¹⁴ Descriptions of the studies and results are included in the many working documents of the Project as well as in the Interim Report (1988). The full list of project documents appears in the Appendix of the Consolidated Main Report.

4. On **reading** tasks, the children cannot answer low-level inference questions which demand that they go beyond the information given explicitly in the text; they also find it difficult to answer "factual" questions, the answers to which are locatable in the text. There appears to be a measure of difficulty with WH-questions (e.g. who, what, why, etc.), which are central to getting to a linguistic understanding of agency, effect, cause, reason, and so on. Reference as a cohesion device is better understood than substitution by pro-forms and also better understood than ellipsis (and the latter two are manifested differently in the mother tongue in particular instances). The children need to score very highly on a c-test based on current content subject texts - where the c-test is used as a measure of text comprehensibility - if they are going to be able to use such texts with the aid of a teacher.
5. The children's **oral skills** (with the marked exception of IBM Writing to Read trained children) are in general very poorly developed, and show a very high degree of grammatical error (or immaturity). There is generally very little opportunity for children to practise basic communicative English, and their use of subject-oriented English is very stereotyped, showing that they cannot easily free themselves of the forms their teachers, their notes, and their textbooks impose. The development of oral proficiency would be very sensitive to the kinds of materials the children use - whether they promote interaction or not - and the opportunities they have to use English would be explicitly constrained by their teacher's management style.
6. The general level of **listening comprehension** is very difficult to accurately determine in a content subject lesson, since the mode in which it is typically conducted is characterized by a capacity to inadvertently mask the absence of pupil comprehension. By Std 3 the language structures required for the fully-fledged use of English across the curriculum may well be largely incomprehensible to the children without considerable mediation, for example, through illustrations, mother tongue interpretation, and text simplification.
7. All content subject texts in Standard Three make demands that are a quantum leap from that which has been offered by the current English courses - specifically that which could ideally have been achieved by the end of Standard Two in two well-developed schemes - in terms of vocabulary, grammatical structure, discourse structure, and range of concepts. Such a caveat cannot be applied to the Bridge to English courses, which were not evaluated in our analytical disparities analysis sub-project.
8. ***The pronounced weakness that we discovered with the children's English skills leads us to believe that the current generation of junior primary children are not competent in terms of the demands of the medium transfer in Std 3, at least in its present form.*** It seems that children are not achieving very well (cf. point 1 above) even in terms of the relatively modest objectives set out by the two major extant schemes i.e. MAPEP and New Day-by-Day; unfortunately, we cannot make any definitive statement about children who have had the opportunity to learn via the Bridge to

English courses, since it is only in 1989 that the very first of these children are entering Std 3 (and this particular group has not covered the full extent of the materials as envisaged by the author, Prof. L.W. Lanham).

4.2. THE PURPOSE OF THE TESTING

In our project planning document written and negotiated in 1986, we were supposed to be aiming at drawing up three profiles in terms of the children's English proficiency: firstly, what their 'current' skills are, what the skills 'expected' of them are, and what skills they could 'feasibly' develop by Std 3. We shall look at the assumptions underlying the derivation of these profiles in turn.

Firstly, the '*current*' profiles. Here we assume that our project results reported in the previous chapter and summarized above have reference. However, the testing of the children could begin and end at a descriptive level: in other words, we could say what the children are (not) capable of, but fail to connect this description in a reasoned way to the skills that children should be capable of, or the skills that underpin effective learning in the higher primary phase. Our testing went through a developmental progression through the course of the project. Starting with the work in 1985, we took the surface structure curriculum as manifested in textbooks and through teachers' workshops as the target to be tested against. Yet this assumption was limited: the Std 3 work that is expected in the current English syllabus is very limited, and achieving this low level would not help children to become fully competent at using EMI. The 'current' profile will also be fundamentally affected by the nature of the learning materials that the children have access to: in other words, materials that are fundamentally grammar-translation in orientation cannot hope to prepare the children for autonomous problem solving in groups. But the most difficult connection to make is that between different aspects of English communicative competence and their relation - causal or correlational - to formal school learning through EMI. If one is able to set up these relationships in a reasoned way - and nobody to our knowledge has gone very far in this task - then the significance of the current test scores would be absolutely transparent. There is a way through this conundrum, and that is to change the nature of the question. This we shall try to show in the third section of this chapter.

The '*expected*' profiles were at face value the easiest to extract. The ESL expected skills could be extracted by an analysis of extant language teaching schemes, and the EMI expected skills could be extracted by the analysis of textbooks. In fact one major thrust of the Threshold Project was to estimate the gap from ESL to EMI as embodied in these texts (cf. the Disparities Final Report). We give a brief resume of the main findings of that study.

The schemes and the texts (two passages from each of two science texts) were analyzed with reference to differences in vocabulary, syntax, speech acts, cohesion and coherence. It was found that there was a large jump in the vocabulary taught in the schemes and the vocabulary taught in the texts. The relative proportion of new vocabulary in the science lessons was high. The

speech acts and their pragmatic force were similar across the schemes and the texts.

There was a much broader range of syntactic structures used in the textbooks than in the schemes. It was assumed that many of the new syntactic structures could not simply have been learned incidentally: up to 60% of the constructions could have presented problems to the children.

The schemes used a much narrower range of cohesive devices than did the textbooks, and they did not explicitly teach the use of cohesive devices. The science texts themselves varied with respect to the use of cohesive devices, and it was found that one was much more likely to make logical connections between propositions explicit than the other text was.

The schemes, because they are principally concerned with the use of narrative text, do not teach any coherence conventions characteristic of expository text in textbooks. While the one textbook had far more difficult syntax than the other, the first had what we considered to be a much more constructive use of cohesion and coherence conventions.

From a comparison of the two textbooks, we concluded that the policy of writing simple syntax, but losing out on helpful cohesive and coherence aspects (producing "impoverished text") could mean that the text is less usable than one which has more complex syntax but more helpful cohesion and coherence.

In general we found that textbooks overinterpreted the syllabus, explicating many more concepts than are necessary. They also seem to be parasitic upon previously published books. When the writers use other texts as a point of departure, rather than children and their task, then they may immediately stray into language and concepts that may be too difficult for children. There are also misguided attempts to write simpler text by making sentences shorter; this usually means that the logical connections between propositions or sentences are left implicit, and this impoverishes the conceptual connections that can be made in the text.

The departmental officials assume that the textbooks embody the syllabus and that the latter is therefore covered in the classroom. However, the planners rarely see the textbooks or their use in the classroom. The teachers themselves find that although the textbooks might contain what is expected to be taught, the books are unusable in the hands of the children. The teachers therefore reconstrue the task expected of the child and typically make simplified notes from the textbook for the children to copy down in their classwork books. In a situation such as this it could reasonably be argued that it is pointless to spend money on textbooks; it would be more usefully be spent on teaching aids such as kits of demonstration material or cyclostyled worksheets.

The teachers do not have a clear idea of what English proficiency is implicitly expected of a child in order to learn in Std 3 through English. Even the "inspectresses" or educational officers take at face value the relation between the ESL schemes and the transition to EMI: they are not aware that their children are not being adequately prepared. It is not unreasonable that this should be so, since not even the "experts" such as textbook writers have such

a notion. The teachers simply do the best that they can in a difficult, if not impossible, situation, and in the end, the language proficiency of the children actually moulds the task of the teacher; she tries to accommodate to the difficulties that the children appear to be having by repeating lessons in the two languages, but principally by having the children resort to rote memorisation. And this rote memorisation might well occur without full understanding of the conceptual structure of a topic.

Another presupposition of the education departments that is not fulfilled is that science should be done through activity methods. The resources in the average school (and here inefficiency of administration might be to blame) are such that the child may scarcely ever see a demonstration done, let alone have a hands-on experience. Here the child is being deprived of a powerful language learning tool: he would be able to master concepts more readily in the second language if he has the chance to have precisely that "experience", which includes seeing, touching, feeling, smelling, exploring, and discussing possible interpretations and inferences one can make about natural phenomena.

There is a need to look at another "expected" index - tests and examinations. When we looked at the tests set in the nonracial church schools and those set in the PEUP, we found very little difference; they both place a very heavy emphasis on the correct memorisation of facts. What these tests do not in themselves reveal is that the child in the two groups may come through quite different learning experiences before emerging at purportedly the same endpoint. For example, church school children might go on a structured excursion to Happy Acres and essentially cover their biology syllabus in four days. Then they go back to school and have all the demonstrations/experiments done and they write their observations up. After this they write a test based on "facts". Contrast this first, happy situation with the second, in which black state school children have this same material presented to them laboriously in some intermix of two languages, with long-winded explanations about processes the children never get to see or experience, with the main concepts summarized in notes (which may be rather incoherent). After this these children too, write a test based on "facts". These authentic descriptions should serve to highlight the fact that educational equity goes deeper than having a common syllabus.

We started out saying that the 'expected' profiles were at face value the easiest ones to extract. However, from our description, it will be seen that at least two approaches were necessary to construe what underlay the 'expected': firstly, the texts, which supposedly embody the syllabus, and secondly, the actual task expectations in the classroom, when the teacher realizes what is genuinely to be 'expected' from her children. The nature of the learning experiences will have a crucial bearing on the learning outcomes (cf. the School Based Learning Experience and Reasoning Skills Final Reports for a detailed discussion of this last point).

The third task that the project was assigned was to try to determine what is '*feasible*' for the child to achieve by the time he arrives in Std 3. In other words, here we were being asked to move the 'goalposts' that have been set for the child. Now, as we have just pointed out immediately above, there are two 'expected' learning situations that obtain, and what we have to say must inform both these situations. Making explicit what is '*feasible*' for a child also

presupposes an understanding of the constraints and limitations on formal language learning preparatory to the language medium transfer. One of the constraints is contained in the nature of the learning materials that can be supplied to the child. Another related and crucial constraint is the teacher's capacity to skillfully use these materials (where they might, for example, be at odds with her everyday mode of classroom management). In fact, it is not really possible to specify categorically what is feasible: the range of what is feasible will be revealed in the processes of preservice and inservice teacher education, and in-school work (cf. specifically Chapter Eight). Here our own project experience of trialling innovative materials together with the insight of experienced practitioners in the field can guide us to some extent with trying to predict what is feasible.

The best empirical solution to trying to pin down what is feasible is to mimic the possible processes of change at one time by observing the use of a variety of courses that could be ranked in terms of their difficulty. In other words, the weakest teachers could be using scheme 1 - the easiest and least demanding course, while the most able teachers could be using scheme 5 - the most difficult and demanding of the courses. There would be a process of natural selection to some extent in any educational system, but the particular advantage to this process would be to match the continua of ESL courses right through the primary phase with similarly ranked courses in the content subjects. So, the courses for EMI - the content subject courses - would have to be coded so that they could be linked with similarly ranked ESL courses. This kind of matching presupposes a level of co-operation in writing different materials, and a level of technical analysis of text that has not yet been attempted in primary education in this country.

A simpler and more immediate solution for establishing the upper reaches of the feasible profile would be to carefully appraise the performance of Std 3 children currently being instructed by mature teachers with the most difficult ESL course available, i.e. Bridge to English. It has been noted (Kroes and Walker, 1988) that this course is more obviously suited to sophisticated teachers, and to this we would add, that with accumulated experience in training and evaluating Bridge teachers, and with the developing expertise of the teachers themselves, the concept of what is feasible will itself grow.

One thing that we did discover was that it is not feasible, fair or just to use content subject textbooks in their present form. The goalposts that have been placed at Std 3 level without due regard for the learning experiences and capabilities of children coming up from the junior primary phase will have to be moved to a fairer position: otherwise the only people who are going to gain are the textbook writers as books simply do have to be distributed to schools, whether they are usable or not.

The sample general science and geography materials developed on the Threshold Project represent our implicit theory of materials development. The principles that govern the development and use of such materials are reproduced in Addendum 1 at the end of this report. Clearly, the materials themselves, together with the commentaries that have been written on them (all available from the HSRC) will substantiate these principles.

The purpose of writing such "hybrid" texts is that they should maximize the opportunities for the child interacting meaningfully with language, either in the task set out in the book, or with other children. The distinction between English as a second language and English as the medium of instruction will become blurred in such texts, and superordinate learning principles which govern both language and thinking skills will be addressed simultaneously wherever possible (see Chapter Seven for further details).

4.3 FUTURE LANGUAGE TESTING IN THE JUNIOR PRIMARY PHASE

Very few research documents ever testify to how else they would have done things, had they had another chance. This is one such document. But to pre-empt conventional criticism first we will explain why basing this project on orthodox psychometric tests would also have had its limitations.

There exists a norm-referenced initial evaluation test designed by the HSRC for the Department of Education and Training. This test serves as a diagnostic tool for teachers whose pupils have just entered Std 2, 3 and 4. The average the Std 2 children got in the norming of this test was 22%, Std 3, 44% and Std 4, 66%. Now this test was designed from items taken by and large from the Grade 2 syllabus and materials (French, personal communication). It would theoretically be possible to turn this test into a criterion-referenced test, and say, for example, that a child should be able to score 80% on this test before he will be able to manage the challenges of Std 3. This cut-off level we could determine empirically by testing children and then watching those that succeed, however, modestly, on the "real" demands of the Std 3 curriculum. So for example, we could set some primitive reference criteria: we could watch children who were able to answer questions using their own English, who were able to write an essay that had some semblance of coherence and used cohesive devices appropriately. Two observations are apposite here: firstly, we would predict that we would find very few children "succeeding" in Std 3, and therefore the criterion might only select the top 5% of the children. The question would immediately arise as to what we would do with the other children, who weren't "ready" for EMI. Secondly, doing things in such a post hoc way would fail to force us into analyzing the nature of the learning that the child has to be able to meaningfully participate in. We are back to the point made in the previous section - we would have described a test and some external criteria and identified children through the use of these - but we would have failed to explain what it is the children have to be able to do.

The way in which we would attack the problem at an explanatory level, with the hindsight of four years of research in the area, would be from a point of negotiating the task-demands of Std 3. By negotiating, we mean going from one situation (and knowledge domain) to another to see how the curriculum in its broadest sense has been constituted, and which aspects are negotiable. We are aware that such an activity would constitute an explicit criticism of the outdated and rigid modes of curriculum development that currently exist in South Africa. Having established the nature of the formal learning demands, we would then establish paradigm tasks that could be described in terms of constituent skills. We are, even now, rather primitively equipped to engage in such an

enterprise; however, we can informally describe the kinds of tasks we would want children to be able to do before they enter Std 3. These would include at least the following:

1. Finding your way to a specified place in an expository (or non-narrative text).
2. Following a simple set of instructions for carrying out a task.
3. Showing command of a range of vocabulary (in semantic clusters) from across the curriculum.
4. Being able to answer questions based on the linking effect of cohesive devices such as reference and substitution.
5. Being able to solve simple problems involving key logical connectives.
6. Being able to show evidence of a productive ability to use advance organizers, headings, pictures and other coherence conventions.
7. Being able to negotiate simple problem-solving tasks in a small group context.
8. Being able to show comprehension of simple story- and information books

A discussion broadly along these lines will be continued in Chapter Seven.

This brings us to the end of Chapter Four, and to the end of the first section of the report. In the second half of this report, we shall try to extend the work that we have done by carrying out a broad situational-needs analysis, which should bring us much further along the road in understanding the nature of the learning demands that are being made on children.

PART TWO: DEVELOPING THE SKILLS THAT STD 3 CHILDREN NEED

CHAPTER FIVE

TRENDS IN BILINGUAL EDUCATION ABROAD

In this short section of the report, we are going to take a broader look at issues affecting the development of an adequate English second language (ESL) curriculum for preparing children for using it as the medium of instruction (EMI). The experience of a country with a developed policy for such a situation is examined in this chapter, namely the United States of America. This analysis is undertaken with the explicit understanding that a unique proposal is required for our particular problem situation, which is not unique in Africa, but which is unique in terms of the resources that could be developed.

The right of ethnic groups to the maintenance of their own language has been officially recognized by UNESCO, the United Nations and The European Common Market (Verhoeven, 1987). In the United States, the Commission for Civil Rights (1975) made a clear policy decision on the need for bilingual education for ethnic minority children more than a decade ago. The commission report described how the low academic achievement of limited English speaking proficiency (LEP) students had long been a concern to the educational establishment. The difficulties arose after the second major wave of immigration, which comprised people who were not of Northern European Protestant stock (as the first wave were), people who did not naturally assimilate in the broader society already established. While the effects of lower level academic skills could be overlooked until after World War II, when there was an abundance of manual labour and unskilled jobs, since this time, it has become increasingly more imperative that people should be able to cope with the demands of more skilled employment. The Commission recognized that language is only one of the factors affecting school achievement, and gave due recognition to the importance of the development of the self-concept. It also saw that the cognitive effects of bilingualism in minority children as being mostly negative.

Until the late 1960's, the educational policy broadly had been to provide LEP children with ESL instruction; however, there came the due recognition (in the Bilingual Education acts of 1968 and 1974) that children had a right to education in their mother tongue as well, and that developing a bilingual curriculum was likely to enhance the children's language and learning skills as well as their self-concept.

Although the new policy is generally termed bilingual education, workers in the area have tended to broaden the conception to (and perhaps confound the concept with) a multicultural curriculum. So apart from the concern that children should learn through their mother tongue until they are able to be "mainstreamed" in the general English curriculum, there is now also concern that every child, as soon as possible, should be able to consider the place of minority groups such as those based on race, language and religion, handicap, as well as different kinds of family units (Contreras, 1983a). The concern with this education starting early is rooted in the conviction that early childhood experience

(which determines the self-concept, motivation and cognitive behaviour) is basically ethnocentric (Gonzales, 1983). At this stage, children are impressionable targets of attempts at attitudinal change. Children can learn about other experience through role play, simulations and dramatic play, and they can be given stimulation about global differences in people's life-style through using rich visual material such as that provided by UNICEF (Contreras, *ibid*).

There are several different versions of multi-cultural education, according to Sleeter and Grant (1987), who have reviewed the current literature of research in the United States (US). They describe five versions, starting from "Teaching the Culturally Different" (teaching Hispanic children more effectively what White children are taught in any event) right through to "Education that is Multicultural and Social Reconstructionist", in which all children are taught to fight racism (and other "isms"). An example of the most radical approach (which according to Sleeter and Grant is still at the level of advocacy rather than practice) would be that espoused by Contreras (1983b). For her there is the danger that multi-cultural education might be seen as simply ethnic studies, where the child is brought to an awareness of the bias inherent in US society. Rather, Contreras (*op cit*) points out that it should have the following dimensions:

- * Be a positive study of American diversity (life-style, custom, religion, language etc),
- * comprise comprehensive educational reform for attaining social, political and economic equity,
- * involve action that is designed to promote equity, and the value of diversity, and learners should show behaviour intended to promote equity.

What Sleeter and Grant (*op cit*) term simply "Multicultural Education" could provide the basis of initial educational reform for both black and white education in South Africa. Gollnick (1980, p.9) summarizes the four major goals of this approach as promoting:

- * The strength and value of cultural diversity,
- * human rights and respect for cultural diversity,
- * alternative life choices for all people, and
- * the equitable distribution of power among members of all ethnic groups.

The notion of culture is coming to be specifically addressed (*cf.* Contreras, 1983b), and an interesting distinction has made between deep and surface culture (following Brooks, 1966). Surface culture includes the products of artistic and high intellectual endeavour, the concepts of heroic valour, lofty spirit and genteel living, as well as various modes of significant thought. This concept of surface culture would be embodied in the study of music and the arts, language arts, the study of story, folktale, poetry and drama as well as a discussion of holidays, historical contributions and personalities.

Deep culture on the other hand, is revealed in the day-by-day life as it is lived: thoughts, beliefs, actions, concerns, and subtle gradations of interpersonal space as it is revealed in interpersonal relationships. Topics that might

be included in the curriculum would include space and proxemics, gesture and kinesics, ownership, taboos, rights and duties, rewards and privileges, family, values, etc. In the South African context it is likely to be difficult for some time ahead to talk about cultural differences in an emotionally defused way, as people are reluctant to open such topics since the current political status quo is explicitly seen to be predicated upon such differences. The radical multi-cultural curriculum might well have to wait until there has been political reconstruction and social reconciliation in perhaps a second phase of a post-apartheid era.

In the meanwhile, the richness of the bilingual curriculum as conceived by the Commission for Civil Rights (ibid) has not always been realized in practice. For example, Barrera (1983) sharply criticizes the majority of Spanish language arts courses in use as being narrow in conception (i.e. they do not have rich starter reading materials, nor do they deal with across-the-curriculum themes) as well as the accepted practice of using a rigid phonic approach, standardized testing of oral proficiency before L2 instruction is begun, and a focus on usage errors. It seems that "the gap between curriculum and reality" (Hawes' (1979) phrase) is not only wide in the African context.

The bilingual language educational model that is adopted by researchers and practitioners is often a direct reaction to larger societal factors (Verhoeven, 1987). For example, in Sweden, which is largely an assimilationist society, researchers lay stress on the development of L1, in other words a belief in the value of the maintenance of linguistic and cultural identity. On the other hand, in Germany, where there is a tendency to segregation (including the provision of mother tongue education to facilitate the possible process of repatriation), researchers stress the development of L2 (i.e. German). In South Africa then, it is not surprising that there should be a reaction to the imposition of mother tongue education, and that the importance of learning English is heavily stressed in the black community. It is difficult to see how a mother tongue maintenance model (such as we have at the moment) while being theoretically optimal for our circumstances, could thrive in this country, since functional bilingualism and biliteracy, the sine qua non of its success (Fishman, 1977) does not at the moment seem to find support in the wider community.

There are two theoretical notions in the current bilingual education literature which are worth our serious consideration, namely, the interdependence hypothesis and the BICS/CALP distinction, and therefore they are introduced here.

The interdependence hypothesis seems to have surfaced in the mid-70's. In essence *it is concerned with the claim that literacy skills learned in one language can be transferred to the second language*. The particular kinds of skills that have been referred to specifically include:

- * metalinguistic knowledge about how language works;
- * the organization and sequencing of discourse;
- * styles of social interaction (Saville-Troike, 1984);
- * orthographic similarities;
- * the relative relationship of morpho-syntactic systems (Verhoeven, 1987);
- * the story grammar of narrative (Mace-Mutlock and Hoover, 1980).

To this we would add:

- * the process knowledge of preliteracy, including the facts that books are to be read, that they are handled in a certain way, and contain particular kinds of discourse.

However, the teacher must perceive the applicability of skills in the new, L2 situation (Gibson and Levin, 1975), which perhaps is the crux of the matter.

Notice that the interdependence hypothesis does not presuppose a particular directionality about which language is used first; in other words, L2 reading skills could transfer to L1 (as would be the case in the so-called "immersion" model), or L1 skills could transfer to L2 (as would be the case in a bilingual education/mother tongue maintenance model). The important point that is made here is that a child learning to read in a second language (whether it be his mother tongue or not) would not have to relearn the full range of skills presupposed in initial literacy; the second process is expected to be relatively more economical. It is another issue altogether as to when he will be ready to start the second language literacy instruction (and this is an issue that we will be taking up again in the following chapter).

The second interesting notion that has been evolved (originally by Cummins (1980)) is the distinction between bilingual interactive communicative skills (BICS) and cognitive academic language proficiency (CALP). These two kinds of proficiency are best understood in a model constructed by two intersecting continue (cf. Figure 5.1 below):

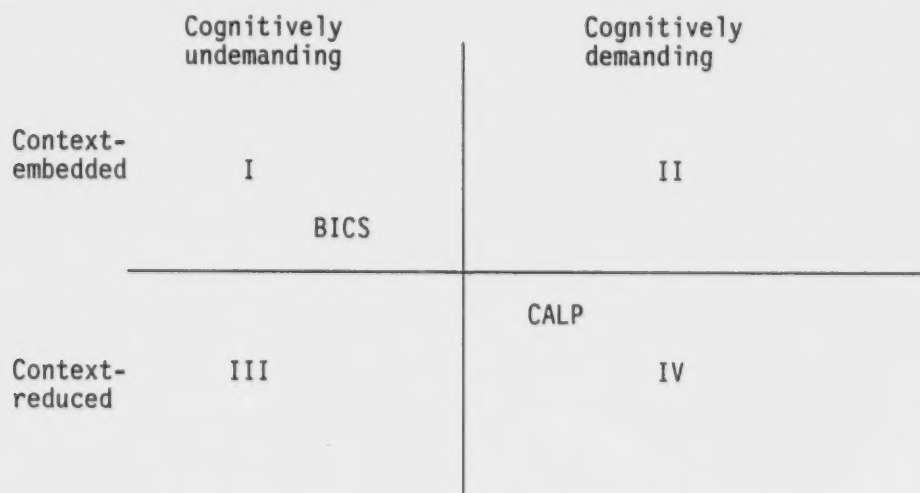


Fig. 5.1: *Two parameters for analyzing language skills (Cummins and Swain, 1986 p.153)*

BICS - constituted in quadrant I - is exemplified by language that is used in cognitively undemanding and context embedded situations, for example, a simple

(perhaps formulaic) face-to-face conversation. CALP - constituted in quadrant IV - is exemplified by language used in cognitively demanding and context reduced situations, for example, reading a content subject textbook. Language activities and tasks can be found that fit in quadrants II and III, for example, writing informal messages, or answering questions about cause-effect relations (cf. 7.6 below for a full discussion). The important point to be made here is that most activities contained in ESL courses usually fall in quadrant I, whereas if the child is being prepared for English as a medium of instruction, language tasks and activities should tend towards those found in quadrant IV as soon as possible. In fact, an approach using these concepts has been developed in Virginia by O'Malley (1988); he calls it the 'Cognitive Academic Language Learning Approach' (CALLA), which he has developed for intermediate level students who, having passed through ESL or bilingual education programmes (sic), are not ready for mainstream, across-the-curriculum, academic learning.

O'Malley (ibid) identifies three kinds of difficulties that LEP pupils have with changing to the mainstream curriculum. Firstly, there is the increased learning demands made by the academic curriculum. For example, pupils are expected to think in the language (whatever that might mean!), reason through to conclusions, read expository text, develop arguments and analyse, synthesise and evaluate. There is a great lag in the development of these more demanding skills after the successful acquisition of the more overt BICS. Secondly, there is the inherent nature of the subject matter: this includes technical vocabulary, difficult linguistic structures and a different discourse style, and these difficulties become more acute with time. Thirdly, there is the need to make use of effective learning strategies, for example, planning and monitoring the learning process, relating new information to existing concepts, organising new information in such a way that it facilitates new learning, inferring meaning from unfamiliar words and concepts, and evaluating the success of the learning effort. Usually the mental processing capacities of LEP pupils is fully occupied with simple comprehension (see the discussion on reading below), leaving little room for the application of higher order learning strategies.

In Chapter Seven below, we present an adaptation of the CALLA approach, which we believe will help to plan an instructional programme in our present context. Indeed, we believe that planning a CALLA approach tailored to our specific educational situation would be a major follow-up contribution of the Threshold Project.

In summary then, we have seen that:

- * the notion of bilingual education takes on a special importance when academic skills are required in the second language;
- * the notion of bilingual education is gradually being broadened to a variety of concepts of multicultural education which have at their heart the notion of social equity;
- * the notion of bilingual education in South Africa will probably stay on an instrumentalist level while notions of culture are politically sensitive;
- * a central notion in bilingual education is the interdependence hypothesis which in essence is concerned with the claim that literacy skills learned in one language can be transferred to the second language;

- * a central distinction should be made between bilingual interactive communicative skills (BICS) and cognitive academic language proficiency (CALP), where the second should be developed for using the second language as the medium of instruction.

CHAPTER SIX

DEVELOPING COMMUNICATIVE LANGUAGE SKILLS IN A SECOND LANGUAGE

6.1 INTRODUCTION

The children in black primary education are in a rather special situation in relation to the large body of applied linguistic and second language testing literature. This is because their situation, including as it does specific teacher and resource variables, has almost never been addressed in the literature¹⁵. This is aside from a handful of local articles, for example Mashishi (1987) who points out that there is as yet no coherent policy for English across the curriculum in the second language situation, and a 1988 edition of Matlhase-di, devoted to English in black education. Hence it is a real challenge to apply and adapt currently existing concepts to our situation. In this chapter we shall be looking at the application of current ideas to our situation; in the following chapter we shall be looking at the skills idiosyncratic to using a second language as a medium of instruction. Although this division is arbitrary in practice, it will be helpful in the latter case to see precisely what is entailed in preparing children for using a new medium of instruction.

The dominant paradigm in ESL teaching is *communicative language teaching*. By "dominant paradigm" is meant the approach that is currently perceived as being the most productive and the most explanatory. Over the past twenty years teachers have become expected to radically change their view of language teaching and language learning, and so for example, books such as The ABC of Communicative Language Teaching (Odendaal, n.d.) have been produced to help them understand and use this approach. This approach emphasises that language teaching should approximate natural language acquisition and use as far as possible. Walker (1986) presented a synthesis of the main principles of communicative language teaching, which constitutes a useful springboard for discussion.

- * The focus should be on meaning rather than form. This means that teachers should reorient themselves towards communication, whereas they have largely been occupying themselves with teaching English usage (i.e. the finer points of grammar).
- * There should be an information gap between speaker and listener, (writer and reader); in other words there should be something that the child wants to express, that the naive listener/reader does not already know. Naturally this is difficult to achieve in the very earliest stage of ESL

¹⁵ This is not to diminish the role of work in Anglophone Africa, but this work is apparently less advanced than the South African work. For example, Etim and Willems (1988), in discussing reading instruction in Nigerian primary schools, refer to the need for medical screening, teacher training and supplementary materials.

learning, since the child initially develops a limited range of resources for highly predictable situations.

- * The meaning must be negotiated rather than predetermined, in other words, the speaker must make adaptations to what he says in the light of feedback that he receives. Notice that this principle presupposes the novelty of the meaning that the speaker wants to convey in the first place.
- * The last principle relates to task dependency, which concerns the child's using the information given in the course of an exercise. For example, Task 2 is only possible if Task 1 has been successfully accomplished. This principle points to the nature of the learning that the child is expected to engage in, i.e. problem solving tasks (albeit it of a very simple nature at first).

Another useful distinction to be made is that between *product* and *process*¹⁶. Product knowledge consists of facts, propositions or principles. The kinds of product knowledge that children could acquire would include, perhaps, knowledge of:

- * phonemic awareness
- * the structure of words
- * the meanings of words
- * sentence structures
- * different kinds of cohesive devices
- * the different ways in which discourse may be structured

The focus in traditional language courses has been on product knowledge. The assumption has been that if the children have all this knowledge about product, they will later be able to put it into practice. This assumption has been in many cases ill-founded, since ESL learners have emerged with product knowledge which they are unable to apply in real communication.

Process knowledge includes strategies or procedures for solving problems or for carrying out complex activities. This would involve for example, using different sources of information in reading and writing such as the text itself, one's own mind or memory, and external sources of information. Other strategies would include questioning and hypothesising, and monitoring of one's own comprehension. Langer (1986) has pointed out that similar processes occur in reading and writing, while Rivers (1986) has pointed out the different processes involved in listening and speaking. Process knowledge has become better understood recently, and we shall return to this concept again and again.

In the next three sections we shall be separating the different language skills, simply for the purpose of ease of discussion; there is no intention to suggest that these skills should be strictly separated in practice - in fact in many cases in practice, they are integrated, and this will become clear in the description and discussion.

¹⁶ This distinction is in some ways parallel to the distinction between declarative and procedural knowledge, which is a well-established contrast in information process theory.

6.2 THE DEVELOPMENT OF EARLY READING SKILLS

Whatever language the child is going to learn to read in, it is increasingly seen to be important that the child has a wide range of preliteracy experiences. The notion of a dichotomy between the preliterate and literate child is being replaced by a notion of a continuum in which the child has experience with printed language in ways that approximate reading more and more closely. For example, Snow and Ninio (1986) describe the early "contracts" of literacy: books are for reading (not for eating your lunch on), books set the topic (so the child's conversation will be constrained in particular ways), and books are symbolic (the child comes to realize that although he can "read" the pictures, he will have to learn how to decode the print). In the meanwhile, the child will also come into contact with environmental print, including for example, names of shops, bus stops, billboards, printed teeshirts, labels and instructions on packets. Also important for the child is experience with decontextualised language - language without the support of conversational context (Snow, 1983) - and opportunities for the child to express his opinion, and his point of view.

Looking specifically at the ESL child, it has generally been supposed that the child will have to have developed substantial oral skills before he can embark on the task of learning to read English. Wheeler (1974) suggests that the delay is based on a false analogy with first language learners. Monoglot (unilingual) children normally learn to read only after they have built up a large oral language repertoire. At first sight, this position is absolutely plausible, since the primary task of the child in learning to read is to decode the graphemes and connect them to a word that he knows and which has meaning for him. If the child does not know the word, then the exercise is an empty formalism, and with a modicum of phonics instruction, he may land up "barking at print". In the Southern African situation, children either do an oral-based course in Substandard A, or else much the same approach is adopted in the first part of a Substandard B course. No formal testing is done of the children's oral competence as a prerequisite for learning to read English, since they all start to do simple written English together¹⁷. The first reservation that could be expressed about this situation is in relation to prolonged oral only instruction, as oral skills are notoriously unstable (Shulz, 1986), especially when children do not have a chance to practise them outside of school, and may well lose them easily unless they are thoroughly consolidated, perhaps with sight vocabulary teaching. There would not seem to be any objection in principle to integrative speaking and reading lessons, right from the beginning of ESL instruction.

However, the question arises as to how much transference of skills from mother tongue literacy will be possible if English is "breathing down the back of mother tongue teaching" from the beginning of formal schooling. We do not know

¹⁷ In the United States it is common practice to test individual children's oral proficiency on standardized tests before allowing them to start reading in English. Barrera (1983) has severely criticised this rigid approach, stressing the importance of oral comprehension skills of materials the child is going to learn from.

whether, or to what extent, the introduction of ESL instruction before mother tongue literacy is well-established is detrimental to the learning experiences of the children. The problem is that English is literally chasing the curriculum, and that the child must have substantial control of a variety of English skills to deal with demands of English as medium (these are to be discussed specifically in Chapter Seven). Be this as it may, it is still of use to examine the course of early reading, bearing in mind that some skills may be transferring from the mother tongue. Very little appears to have been written about learning to read in ESL in a context where there is scarcely any environmental support (although there is some literature emerging about minority (LEP) children who do get some support, cf. Escobedo, 1983, and Hudelson and Barrera, 1985).

There are several initial, formal literacy experiences suggested as appropriate by Hudelson and Barrera (ibid): environmental print, key word method, language experience method and teacher-created texts. Environmental print can be used in children reading the labels of product containers (developing at the same time visual discrimination and sound-letter correspondence), and perhaps bringing a variety of containers for a classroom shop, for which shopping lists are written, and in which numerous role plays can be enacted. Other resources include television programmes and advertisements. The language experience method has the same philosophical base as the key word method - namely that initial reading material should come from the children's own experiences rather than from textbooks. The teacher will create experiences that the children can share and talk about, and then create simple texts for the children to work with. It is possible that a research-based language course could do some of this work for the teacher, by setting up language learning situations that are known to be motivating for the children (rather than stereotypic experiences so often found in early basal readers), but the experience of children from different backgrounds would have to be catered for explicitly.

There is one resource that could easily be developed further in our situation, both in the mother tongue and in English: the use of predictable reading materials. Many of these already exist in English (Rhodes, 1981, lists forty titles), for example, The Three Little Pigs, The Billy Goats Gruff, etc. The rationale behind the use of these materials is that there should be a repetitive pattern, familiar concepts, a good match between the text and the illustrations, and the children should learn the rhythm of the language. In ESL the teacher can tell the story first in the mother tongue, perhaps getting the children to make predictions from the pictures. She would then read the story, and get the children to make oral clozure (complete the sentences), following this up with written activities. What is important in this approach is the building up of confidence and motivation at the beginning of what is a long and arduous process; At the early stage of this process it is important to allow the child to experience interim success - for example, by teaching some sight word vocabulary before embarking on more abstract phonics work.

The first three years of reading shows a rapid development in skills (in information processing terms). In the first year or so, the children develop phonic awareness and visual short-term memory skills. Then the skill becomes more holistic, while the child develops more phonological awareness and increasing verbal recognition skills. In the third year, the better readers

develop analytic and synthetic perceptual skills. By this stage, the child will have orthographic skills - recognising whole words without having to go through them phonologically (Ellis and Large, 1988). This description of underlying skills is conservative if one compares it with children's apparent ease in reading connected text. Ellis and Large (ibid), in their analysis of early reading skills, conceive of the child as solving a problem in learning to read, in fact they see the role of instruction as being in *helping the child to learn to read* rather than *teaching the child how to read*. The reason for this particular focus is that the child comes already geared with considerable knowledge about language; hence learning to read in one's mother tongue can easily be seen as potentially motivating for the child.

A critical point which must be made here is that the task of reading in a second language is so much more complex because the child does not have a comprehensive grammar of the language already internalized. So, instead of the child's using his knowledge of language to inform his heuristics in learning to read, the ESL child will have to use the relatively isolated information he possesses about the new language. While the first language reader will read in language which he knows, and about things which he knows for several years, before using reading to "learn the new" (Chall, 1983), the ESL reader would ideally be extending the focus of reading very early on by using written text as a means for learning more language (and new concepts). One challenge then, is to provide the child with text which is intrinsically interesting, but maintains a critical balance between old and new lexis and syntax. However, the need for motivating the young child in ESL reading is every bit as urgent as it is in the mother tongue.

In currently received theory about reading (e.g. Carrell, 1988), the process is viewed as interactive, that is, involving both bottom up and top down processes. In bottom up processes, there is a code emphasis, with a focus on the rapid and accurate identification of lexical and grammatical forms. (The ultimate aim is to automatize the identification processes, to allow the reader to think about the larger meaning of the discourse.) In top down processes, there is an emphasis on meaning. We will look at these two types of processes in turn.

One of the mechanisms for activating a schema (the building block of cognition (Rumelhart, 1981)) is bottom-up or data driven activation. In other words, a schema is said to be activated from the bottom up whenever a sub-schema (for example, a word) which has been activated causes the various schemata of which it is a part (for example, a noun-predicate construction) to be activated. In general terms, data-driven activation goes from part to whole, for example, from grapheme to word, word to sentence, and sentence to discourse.

One of the best known and most familiar purportedly bottom-up processes is the use of phonics¹⁸ in early reading. In a recent analysis, MacLean (1988) has

¹⁸ Over the last half century there has been a debate about the relative merits of focussing initial reading on phonics or whole word approaches. The debate has been heated and polemical (cf. Flesch, 1983), and it seems that the rhetoric flourished on lack of genuine insight about the complexities of the reading process.

pointed out that, contrary to popular belief, we do not actually use phonics when we read, nor indeed do we use phonics directly when we learn to read. Phonics appears to function as a kind of instructional representation, which increases phonemic awareness. Learning phonics does leave the reader with a lasting advantage in word recognition skills, but its function at the earliest stage seems to be that of a catalyst, rather than an integral part of the early reading process. In the bilingual education situation it would seem to be advantageous for the child to be able to bring to the level of awareness the different phoneme-grapheme correspondences in the two languages; however, this does not automatically obviate mother tongue interference in pronunciation (for error-free learning to occur, the child probably has to learn from a mother tongue speaker in both languages), but should facilitate both reading and writing skills.

So the most obvious candidate for bottom-up processing, on closer inspection, does not seem to constitute a unitary process. Further explication is required - there would seem to be two types of automatic identification processes, i.e. perceptual and cognitive (Eskey and Grabe, 1988). The perceptual process predates the cognitive and involves the recognition of the visual representation; the cognitive process involves deriving the meaning of the form directly (without phonological processing of the form). Eskey and Grabe (*ibid*) describe rate building exercises for the recognition of letters, words and phrases. As an outcome of such exercises, it may well be a revelation to ESL readers to recognise that they can read in chunks larger than a word.

The development of an extensive reading vocabulary is another bottom up concern in ESL reading. Current thinking on vocabulary development (e.g. Carrell, *ibid*) tends to the view that word meaning is not fixed, but has a variety of meanings around a prototypical core, and the different meanings are determined by context, and in conjunction with background knowledge. As Carrell says (p.242-3): "on the one hand, an important part of teaching background knowledge is teaching the vocabulary related to it, and conversely, teaching vocabulary may mean teaching new concepts, new knowledge". Although there is intuitively a relation between understanding the meaning of a group of words, and understanding the passage in which the words are contained, there is not a great deal of research evidence on the effectiveness of preteaching vocabulary on passage comprehension. From a review of the literature, Carrell (*ibid*) identified the following characteristics of successful instruction:

- * the words to be taught are keywords in the target passage,
- * the words are taught in semantically and topically related sets (so that word meaning and background knowledge improve concurrently),
- * both definitional and contextual information is involved,
- * pupils engage in deep processing of word meanings, and
- * only a few words are taught per lesson and per week.

For vocabulary instruction to be effective, Carrell feels that an extensive and long-term vocabulary development programme accompanying a parallel schemata or

background knowledge development¹⁹ programme is probably called for, and that every second language curriculum should have such a general programme. There are obvious implications here for English servicing the entire curriculum.

I should like to outline the beginnings of a task analysis of one language skill which applies across both languages, and that is learning vocabulary from context. In the language of information processing theory (cf. for example, Sternberg, 1982) the organism busies itself with selective encoding, combination and comparison. In terms of the vocabulary learning context, this means that the learner must see the new vocabulary items as the centre of a network of information, and seek out cues (which we look at below) within the sentence or in surrounding sentences. The cues are then combined in such a way as to start building a plausible description of the meaning, and what is being constructed is compared with what has been learned in the past.

The cues which the learner must come to recognise and use include the following:

1. Setting cues (including time, space and situational information)
2. Value-affect cues (whether the word has positive or negative connotations)
3. Stative property cues
4. Active property cues
5. Causal-functional cues
6. Class membership cues (what it is related to)
7. Antonymic cues (what it is contrasted with)
8. Equivalence cues (what it is informally equated with)

These cues operate spontaneously or consciously in the construction of word meaning. They have bearing on:

- * the writer/speaker of the text (who must keep the density of new words to a minimum, and only use new words when they are important to the content),
- * what the teacher can explicitly mediate (lessons can be organised around the identifying of these cues), and
- * what the children can learn to do in a reasoned, step-by-step way and, later, automatically.

The following constructed example has all of these cues in it:

It was a very cold February evening, and Fiona had invited us to the student's hall for the *ceilidh*; it was her eighteenth birthday, and her parents had decided to celebrate. There was plenty of food and drink, which was just as well, because all the dancing made us very thirsty. (I might have chosen a dinner myself, it was so tiring!) But for Scottish people, coming together to listen and dance to

¹⁹ Carrell has come down firmly on the side of what Anderson and Freebody (1981) call the knowledge hypothesis of vocabulary development. This is contrasted with the aptitude and instrumentalist hypotheses. The salient point made in the knowledge hypothesis is that concepts are arranged in clusters, and so they should be taught in this way. For further discussion, see the Disparities Report.

music is a good way to celebrate.

So, what is a *ceilidh*?

We need to know how books and teachers formally and informally engage in vocabulary instruction. And this is but one small part of language and literacy learning. What is attractive about an analysis such as the one above is that it would enable the mediator (teacher or text) to work on vocabulary development as part of conceptual development²⁰.

The ultimate importance of developing vigorous bottom-up skills in second language reading is that the reader learns to chunk information in meaningful sense units. At the plainest level, if a child reads word by painful word, he may well have forgotten what was at the top of the page by the time he has gotten to the bottom. If the reader has read a proposition which makes sense to him, it is likely to get chunked as a microstructure of a story grammar. But if lexical access for example, is inefficient and capacity draining, the entire comprehension process will break down (Perfetti, 1985). Perfetti (ibid) presents research results (Perfetti and Roth, 1981) which he takes to indicate that the interactive system of reading is asymmetrical: the asymmetry is that the lower level processes in skilled reading are autonomous. That is, they can make a contribution to word identification which is independent of context. The research indicated that low level perceptual information is sufficient for identification, but that semantic contextual information is not. (To be specific, what amounts to cloze contexts with blurred letters will not ensure the correct identification of the word, but relatively blurred words out of context can be identified.) The significance of this for ESL reading is that word and phrase identification skills are important to be acquired in their own right.

To turn now to *top-down* processing, we look first at its basic interpretation in a schema theory context. Top-down processing is conceptually driven: activating a high level schema leads to the expectation that sub-schemata will be able to account for a portion of the data (Rumelhart, ibid). To give a concrete example, if a reader works out that a text is about the growth of plants, he will expect to find information about the growth of roots, stems and leaves.

Schema theory research has indicated that a reader will better understand a text if he has background knowledge of its content area (Pearson, Hansen and Gordon, 1979; Stevens, 1980). In the ESL context the learner may have difficulty when a schema is specific to English "culture"; however, in our context, and at the junior primary level, we would posit that there is more likely to be difficulties with discipline-specific information (cf. for example, the discussion in Alderson and Urquhart, 1988). The immediate pedagogical question is whether we can improve comprehension by pre-reading activities, but these turn out to be

²⁰ What is also exciting is that information of the type in cues 1-7 also occurs in the semantic specification of the lexical items in the lexicon. What the learner also has to develop is a specification of the grammatical characteristics of the item. Therein lies a very complex task analysis.

so general - Carrell (ibid) suggests direct teaching, viewing films, slides, pictures, field-trips, real-life experiences, and role play experiences - that one wonders if a broader generalisation is in order. In other words, teach in themes, and consolidate listening and speaking skills before going on to formal texts.

Developing appropriate schemata for proper interpretation would seem to be the most important top-down processing skill for young ESL readers. If it is possible, relevant schemata could be built up in the mother tongue in a parallel curriculum, allowing for the fact that identical concepts may not exist across the two languages. Other top-down processes include reading for global meaning (where this supposes the ability to synthesize and summarize information), the willingness to take chances with interpreting meaning, and making prediction. This last skill could start to be developed from the very earliest stages, using texts which are slightly easier than the reader is accustomed to dealing with. Carrell (ibid) has summarised five techniques described in the research literature:

- * exposing a text bit-by-bit (either sentence by sentence or clause by clause) and asking the readers to predict the contents of the next part;
- * giving only the first and last sentences of a paragraph of a text, and asking pupils to reconstruct what has been omitted;
- * asking pupils to unscramble mixed paragraphs;
- * asking pupils to unscramble two intermingled texts;
- * asking pupils to make contextual guesses in cloze texts.

Reporting how the prediction was made is one of the most important parts of this learning process, and easily the most difficult, since it involves metalinguistic language, e.g. "I could tell that the tall man would be the thief because ...". Metalinguistic abilities are part of a specific subset of more general metacognitive skills. Metacognition as a theoretical term (for a further discussion see the Reasoning Skills final report) refers both to knowledge about cognition as well as regulatory mechanisms in thinking. In the latter sense they include the thinker's planning, monitoring, checking and evaluating the outcome of his own thinking processes.

One such monitoring mechanism that has become salient recently (Chapman, 1987, Cunningsworth, 1988, Arnold, 1988) is the teaching of cohesive ties for reading and writing. Cohesive ties involve lexical substitution, reference, ellipsis, and so on, and give the text a sense of having a coherent meaning. The anticipation and chain monitoring of cohesive ties has come to be seen as an integral part of the reading process (Chapman, op cit), although Steffenson (1988) has cautioned that we do not fully understand the role of cohesion in reading, and that a deficiency of other top-down processing skills may override the benefits of explicit knowledge about how to use cohesive ties.

Reading, as we have seen, is a complex cognitive task of immense importance in school settings. It is the instructional domain to which psychologists have paid a great deal of time and attention. Recent insights about its interactive, constructive nature (cf. Garner, 1987 for a review) places a great emphasis on an active learner who uses cognitive resources to direct a task. So it is not

surprising that there is possibly a rich application of metacognition and executive control theory research on reading, for researchers would have a particular interest in an activity in which the active learner optimizes his own learning.

Although we could find no research done in this area on second language reading, we would expect that the findings would have application, notwithstanding interesting adaptations and applications in a second language, non-western context. As Ryan, Ledger, Short and Weed (1982, p. 54) note, "Comprehension problems among unsuccessful readers with reasonably adequate decoding skills are often related to their failure to participate actively and strategically while engaged in the reading process".

Perhaps the two most replicated results of recent years tying metacognition to reading are :

- * younger and poorer readers have little awareness that they must attempt to make sense of text; they focus on reading as a decoding process, rather than on a meaning getting process (Baker and Brown, 1984, p.358), and
- * younger children and poorer readers are unlikely to demonstrate that they notice major blocks to text understanding. They do not seem to realize when they do not understand (Garner and Reis, 1981, p.571).

A large number of interview studies and error detection experiments have yielded these robust findings.

According to Garner (op cit, p.29), we do not have any greater clarity for reading than we have for other cognitive activities about the relationship between knowledge and performance, about the relationship between "knowing" and "knowing about knowing", or about the spontaneous development of metacognition in the area of reading. However, we do know something about the differences in metacognitive knowledge amongst children of different reading competencies. An interview study by Forrest and Waller (1980) on children in grades 3 to 6 showed an increase in metacognitive knowledge about decoding, comprehension and reading for a purpose with both higher grade and higher reading achievement level. The more competent readers knew that what a word says is not equivalent to what it means, they knew that self-test strategies are helpful in getting ready for a test, and they knew that "strategic" behaviours are important for reading for study, if not for reading for pleasure.

Another study (Garner and Kraus, 1981-1982) also linked knowledge and performance. Using seventh grade children, they found a significant difference between good and poor readers. A sample of responses illustrates the distinctly different emphases found in the two groups. To the questions "What things does a person have to do to be a good reader?" good readers gave such responses as "understand what you're reading" or "getting the ideas", whereas poor readers provided such answers as "pronounce the words right", or "know all the words". To the question "If I give you something to read right now, how would you know if you were reading it well?" good readers responded well with "if I could understand without reading it over and over again" or "if I didn't have trouble getting the point". Poor readers responded to the same question with "if I don't pause much" or "if I read fluently out loud". Finally, to the question

"what makes something difficult to read?" the good reader responses of "if you're not familiar with the important ideas" or "badly written stuff where the ideas are hard to get" can be contrasted with "small print", "a lot of big words", or simply "long words" mentioned by poor readers. A replication of this type of research with black children on first and second language reading is likely to yield a rich body of data about the children's internal, private reading life.

In the meanwhile it would be good to be able to explain the differences that have already been established. While it might be thought that a lack of school experience accounts for the missing of information and misinformation, Garner and Kraus (ibid) suggest that in-school experience itself may account for some of these knowledge problems. Instruction strongly affects the pupil's perception of the reading process, and early reading experiences emphasize oral reading and decoding. They also suggest that good readers experience the "magic" of reading for meaning, and so alter their perceptions of the ultimate goals of the process: poor readers, on the other hand, who have never experienced this "magic", have a poorer idea of what the purpose of reading is, and so continue to hold on to decoding emphases when trying to improve their reading performance. It may be that good readers quickly get a chance to pursue meaning-oriented reading even in the classroom, while the poorer readers get stuck at the point of reading accuracy. This was certainly the impression we gained in our classroom based observations (see the School-Based Learning Experiences final report), with only one Grade 1 teacher (in an open convent) having the insight to insist that poorer readers should get lots of practice reading easy readers, so that they can experience a feeling of success, and presumably also learn to automatize their decoding skills. We need to know how many children are experiencing the "magic of reading", for to achieve this in a second language is a deeply significant step.

There is also research which found that children do not readily report errors and inconsistencies when they are reading. These kinds of studies are called error-detection studies. Garner (ibid) summarises the convergent findings of the research. Firstly, many of the errors go unreported, even by adult subjects, even in situations when analytical processing is encouraged and reinspection of text is sanctioned; second, more experienced and more proficient readers were better than poorer readers during such error detection tests, and in report-backs on their experiences. In second language reading, the onus would be on the writer to write "considerate text" for children (see Chapter 7 below, and also the Disparities Final Report), but the greater challenge will be in getting the children to indicate where they don't understand because there are cultural mores militating against doing this (see the School-Based Learning Experiences report). Once again we have a matter for research, that is, determining what kinds of class management strategies a teacher would be prepared to experiment with to facilitate cognitive monitoring.

It seems that there is very little direct instruction in Western primary schools on reading comprehension. Durkin (1978-1979) found that only 1% of instructional time on reading which she observed was devoted to direct comprehension instruction; in a follow-up study she found that teacher's manual generally paid scant attention to direct, explicit comprehension instructional suggestions. Our own experience with English second language teaching schemes, is that they too,

with one noticeable exception, do not focus on techniques of reading comprehension. (In fact, the caricature of reading comprehension exercises in ESL text is that the children need only find the piece in the text that matches the syntax and vocabulary of the question.) The fact that teachers find it very difficult to use the one course that addresses itself directly to reading processes suggests that they simply do not know and probably have not been taught how to teach reading comprehension, and that the teachers themselves may well be lacking in higher-order reading skills (cf. Johansson, 1984). If indeed this is the case, then developing (even trial) applications of reading theory are perforce bound to take the teacher into account, for teachers cannot mediate things they themselves are not capable of.

To summarize, in this section we have seen that:

- * early preliteracy experience is important;
- * environmental print is an access point into literacy;
- * the supposed primacy of ESL speaking over reading has been challenged;
- * the benefits suggested by the interdependence hypothesis may be lost if ESL instruction follows too closely on the heels of mother reading instruction;
- * there are a number of strategies for beginning formal literacy, and predictable reading materials have not yet been exploited in the local context;
- * learning to read involves a complex set of visuo-perceptual and cognitive skills; ESL reading is very different from the initial process in the mother tongue, because of the partial or total absence of an internalized grammar of the second language;
- * currently received theory of reading stresses the interaction between bottom-up and top-down processes; bottom-up processes involve decoding processes (which need to become automatized); top-down processes include reading for meaning in a global sense. Poor readers tend to get bogged down at the decoding stage;
- * research on metacognition in reading indicates that younger, and poorer readers have trouble monitoring their own comprehension processes; however, monitoring is a strategy which is rarely taught.

To conclude this section on reading skills, it is instructive to stand back and look at reading in its social and educational context: all the insight we have about the nature of reading will hardly be of use if we cannot implement this knowledge within a stable, constructive programme. In a review of the characteristics of effective reading programmes in the 60's and 70's Samuels (1981) noted the following (among others):

- * strong administrative leadership
- * high expectations and the belief that the teacher can make the difference
- * teacher training
- * specific reading objectives
- * a skills-centered curriculum
- * instruction and materials relevant to the goals
- * the efficient use of time
- * frequent evaluation of the pupils' progress.

It may be that these characteristics can be generalized to across the curriculum upgrading in black education, and we shall return to a detailed discussion of this in Chapter Nine. However, we shall look at one more, crucial, aspect of learning to read in detail - the classroom context of learning to read literature (if the term is not too pretentious); what we are referring to here is extended reading, which is a term used to refer to reading beyond your prescribed (basal) reader. Morrow (forthcoming) makes the distinction between children who develop reading skills, and those who *choose* to read.

Pupils who choose to read are successful readers. Studies of children identified as voluntary readers in elementary and middle grades found that these children achieved very well on standardized reading achievement tests (Greaney, 1980). Morrow herself (1983) found that preschool children who demonstrated a voluntary interest in books were more school-ready than other children, and were rated more highly on other social and emotional factors.

More recent data suggests a strong relationship between the amount of silent reading a pupil does (both in and out of school), and the pupil's reading achievement on a number of measures (Anderson, Wilson & Fielding, 1985). Unfortunately, substantial numbers of children choose not to read neither for pleasure nor information. Of the 5th grade pupils that he surveyed, Greaney (ibid) showed that 22% chose not to read at all; those who did read spent only 5% of their free time doing so. Of the Std 3 pupils that we have worked with, probably 98% choose not to read at all ... And choosing not to read has become such an important phenomenon in the United States, that it now has a name - aliteracy. Perhaps this term is not entirely appropriate in our context, because books have to be accessible to children before we can truly talk of their choosing not to read them. In other words, aliteracy is perhaps a phenomenon of the developed countries. However, in our context, the attractions of technology may reduce the attractiveness of books if and when they were to become available due to natural processes of socio-economic development²¹.

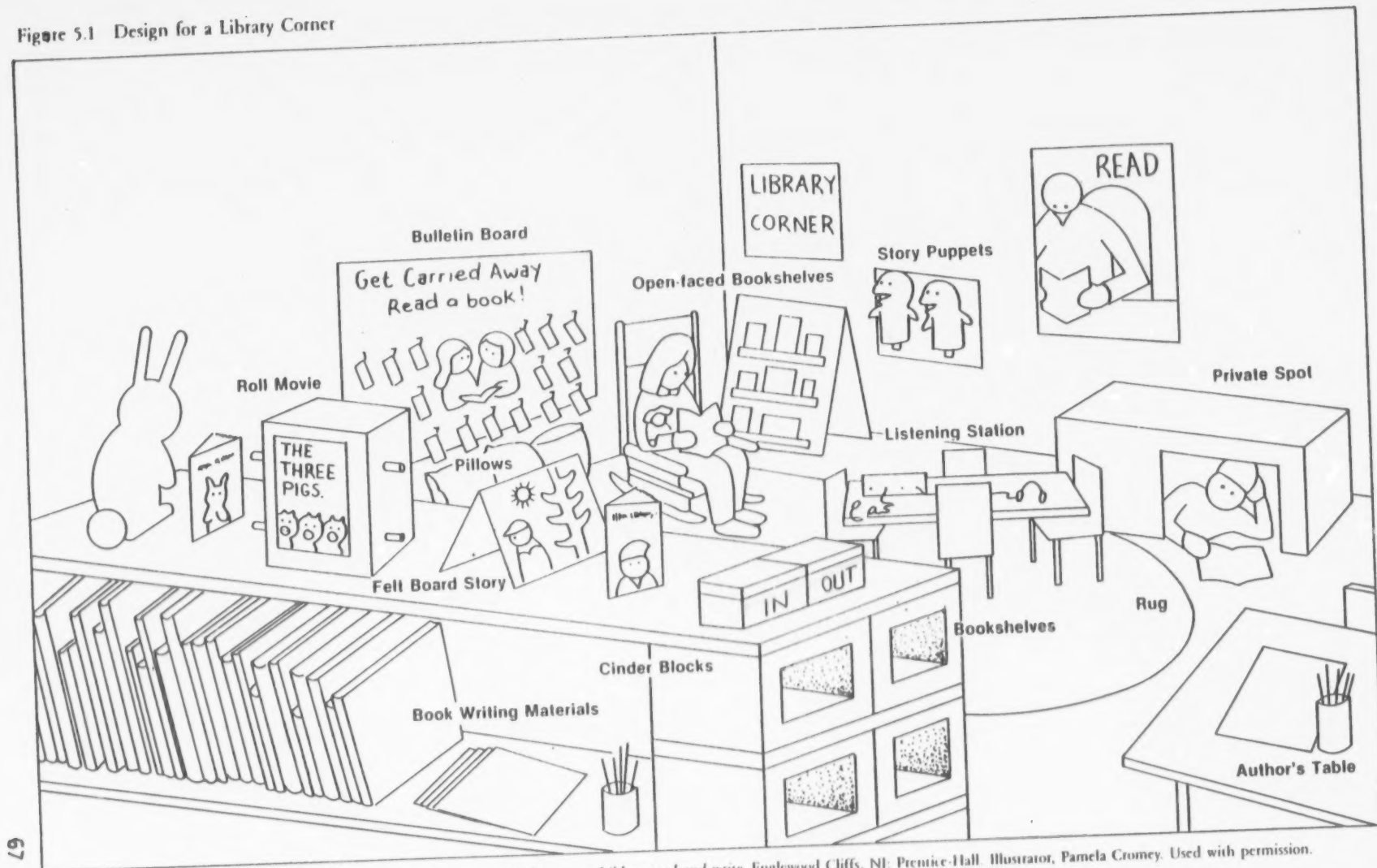
Morrow (forthcoming, ibid) bemoans the fact that teachers do not encourage free reading, but seeks an explanation on their trying to get through their basal reading series, so the systematic development of voluntary reading remains a low priority in early childhood and elementary classrooms. Part of developing what Morrow calls a literature programme is the development of a classroom library corner, which is illustrated overleaf. This should be developed in addition to a school library, since immediate accessibility to books is very important. The physical components we describe here, the implications for the teacher are described in Chapter Nine.

The physical characteristics of the library corner would be as follows:

- * be visually and physically accessible

²¹ A concrete example of this would be the home of friends of ours in Mamelodi, in which there are three television sets and not one book in sight anywhere.

Figure 5.1 Design for a Library Corner



Source: Morrow, L.M. (1988). *Literacy development in the early years: Helping young children read and write*. Englewood Cliffs, NJ: Prentice-Hall. Illustrator, Pamela Cromeey. Used with permission.

- * be able to hold at least six children
- * provide comfortable seating
- * be partitioned off on two or three sides for privacy
- * include an open-faced bookshelf to feature new or special books

The library corner should contain:

- * varied types and levels of children's books, including picture books, picture story books, fiction, nonfiction, biography, poetry, number books, fairy tales, nursery rhymes, folktales, craft books, books related to TV programmes, magazines and pupil generated material
- * bulletin boards and posters
- * story props such as a felt board, and taped stories on cassettes, with tape recorders and headphones for listening

Organizational components would include the following:

- * the books should be categorized for selection by author, topic, etc., and
- * the teacher should teach the children how to select books and check them in and out, either on index cards or a sign-out sheet.

Other components apart from managing the classroom library would include teacher-directed activities to motivate children in their wider reading task, and also the setting up of specific periods for "recreational" reading.

We turn now to writing and other skills: it has been a disappointment to the writer (and no doubt to the reader) that the literature on the other language skills is so much less finely differentiated than that on reading. Hence the following two sections are less specific and more speculative than this one has been.

6.3 WRITING SKILLS

Very little seems to have been written about learning to write in the second language at the primary level. Once again inferences and extrapolations have to be made from what is currently available in the literature.

Any discussion about writing in the junior primary phase is based on at least two assumptions. The first is that the child will be first taught to write in his mother tongue, so that the mechanics and conventions learned in the mother tongue should transfer to learning to write in English. The interdependence hypothesis would operate here, but with the same cautionary caveat as expressed about reading, and that is that the full benefits of transfer might not be experienced if English is chasing too closely on the heels of the mother tongue. However, in a narrow language arts concept (rather than language medium concept) the child's ability to write in his mother tongue may always be in advance of his skills in English. The second assumption is that the child's ability to read in English will be in advance of his ability to write in English by the end of

the Junior Primary phase. However, the demands of the curriculum are such that the child will have to be able to write both simple narrative and expository writing by this stage (for further discussion see Chapter Seven below).

What the child would like to write is severely constrained by what he is able to write: in terms of child-centred education where a central principle is that the child should be able to express meaning that is personal to him, cannot find genuine realization in the ESL context. This is one strong argument for the importance of teaching children through their mother tongue first, in order that (in optimal conditions) they can express themselves and develop their self-concept.

Reading and writing should be taught in conjunction, preferably every day. The instructional objectives must be similar in terms of content and purpose, and the instruction and discussion should emphasize the similar content and purpose. For example, one could use predictable reading resources and then get children to produce writing that follows the model that has been set up in the discourse. Story-maker activities or story starters would have at least three components: firstly, one can get the children to examine the key vocabulary in a story, and make predictions. After examining the character/setting/problem/solution structure, the children could chart the various possibilities. Secondly, in predicting alternative outcomes, the children will have to use evidence to select alternatives. Thirdly, one of the salient purposes of story-maker activities would be to teach the appreciation of sequence and causation. (Much incidental knowledge about natural processes in the world can be gained through narrative material.) Children can rewrite stories by replacing critical aspects of the grammar e.g. agent, action, and consequence.

However, one motivating principle that should emerge as soon as possible in the teaching of writing is the provision of "real" audiences (Shanahan, 1988). Ways of providing these would be by having a classroom penpal, having classroom mailboxes, and using dialogue journals. Hayes, Bahruth and Kessler (1985) provide an enchanting real-life account of the use of Journal Dialogue (DJ) with Mexican Spanish fifth grade children. They report that the DJ was for them the "catalytic convertor", eventually changing their nonwriting pupils into writers. They first asked their children to write three lines about a topic of their choice, about anything, a topic that they could and would write about, so that they provided the context, the focus. They set aside fifteen minutes a day for journal writing. They responded to pupil's writing with at least three lines of their own. They didn't edit or correct mistakes, and they always responded to the child's focus. More importantly, perhaps, they always attempted to convey their responses in clear, understandable language: they tried to provide the children with comprehensible input, input from which the children could extract meaning and structure.

The strength of the DJ is that fluency increases with time; so does accuracy. Hayes *et al* point out that one of the purposes of their DJ project was to desensitize the children to error as the pupils were very aware of being incompetent and making mistakes continually, to show them that errors are an integral part of the processing of learning how to do something.

Another extension of the motivation principle would be that the writing should

always be purposeful - here the writing might not communicate with another person, but might be necessary in order to solve a problem. In the end, the most common purposes of writing in the content subject classroom are likely to be stiflingly boring, for example, taking down notes. However, the nature of the content subject materials should, as we have suggested, be altered so that the children can engage actively with their text, and that would include doing problem solving activities in their books.

One of the themes that is emerging in the literature is teaching children to use cohesion skills in writing beyond the sentence (e.g. Cunningsworth, 1988). Suggested activities would include the recognition of reference and substitution in authentic text, and the replacement of excessive noun repetition. Cunningsworth stresses that transfer of cohesion skills from reading to writing is not automatic: recognising the devices does not mean that they will be activated when the learner is himself writing. Our own research, reported in Chapter Three above, suggests that free writing samples are marked by an absence of cohesive devices, and that current ESL courses do not pay attention to the teaching of anything more than anaphora. Murray (personal communication) that adopting the theme of teaching cohesion would involve at least the following: firstly, the availability of really good textbook writers who are familiar with ESL at the primary level and have a sound background in applied linguistics, and secondly, a massive educational programme to teach teachers to see the value of such exercises and how to use them.

Bereiter and Scardamalia have written about the development of writing skills in the first language in terms of the allocation of mental resources and the development of automatization. The child can store relatively small amounts of information in his short term memory (STM), and automatization relieves the pressure on the STM. Even labouring over handwriting can use up processing space. At first letter formation and spelling take up the greatest amount of attention, and after that spelling and punctuation; later, "interior" punctuation and less common syntax can take up processing capacity, and Bereiter and Scardamalia are of the opinion that certain complex constructions probably always require mental capacity. They would estimate that by Std 1 or 2 transcription ceases to occupy all the processing capacity, and children can start to think about something else at the same time as they are writing. Then writing in its deeper sense of the construction of a novel message can start to develop. So, in the mother tongue this is what we could reasonably expect: what we do not know is how much heavier the information processing load is in the second language to get to the same level of conscious attention to the content.

In our Reasoning Skills Final Report, we have a section in Chapter Three about the teaching of expository writing, including typical problems such as the typical use of the strategy of "knowledge telling", as well as highly innovative work to try to stimulate the development of integrative writing. This research is targeted at the first language child of ten years and beyond, and would therefore be of benefit directly in mother tongue classes in the junior primary phase. However, later in the higher primary, and in the secondary phase, due attention will be paid to the development of higher order writing skills in the second language.

6.4 LISTENING AND SPEAKING SKILLS

Listening would be the reflex of reading skills. The child has to learn to listen to other pupils as well as to the teacher, who will become an increasingly important source of information as the child goes higher up the school. The other pupils will only be a source of comprehensible input if they have something authentic to say for themselves. It is difficult for the teacher as a second language speaker of English herself to keep her English at a very simple level, and therefore she needs great care and guidance in the very early stages of talking to the children.

It is assumed that the child will have learned to pay attentions to simple classroom instructions in his mother tongue in Substandard A, and that he will quickly learn to respond to the same in English from Substandard B. Hence, the child will learn to listen to English which has a purpose, albeit a very limited purpose within the confines of the classroom. Later, the child can learn about larger, school-based routines and community processes.

The particular challenge for the black child lies in the characteristics of English which are not matched by parallel structural features in the mother tongue, learning to hear contrasts when they are meaningful, and to ignore them when they are not. The child should learn to discriminate between English vowels (a particular challenge in this learning situation, since English has a long vs short vowel contrast, and pure long vowels are contrasted with diphthongs), and English consonants, in meaningful tasks, as well as between the meaning of different intonation contours (such as question and statement). The discourse functions of intonation (as used by native speakers) seems also to present problems, for expressing doubt, disbelief, sarcasm etc.

If possible the child should be exposed to mother tongue English, if necessary through taped material; this requirement is not a trivial one, since, once South African society becomes more open, it will be important for the child to be able to understand South African English as well as Black South African English. Hence the classroom teacher must not remain the only model for the child. In any event, important guidance such as that given by Ellis and Tomlinson (1980) on pronunciation, stress and intonation should be made available to teachers.

The development of listening skills should always be embedded in meaningful tasks, from which real consequences emanate. This communicative requirement can be actualized to different degrees: for example, the teacher could give regular dictation, which perhaps completes a story that has just been read. Or the teacher can give a partial cloze dictation, so that the child can be given clues to fill in a crossword, for example.

A very significant way to develop listening skills is to read to children, instead of, for example, getting children to do "round robin" oral reading. As Hayes *et al* (ibid) observe, there should be an explicit understanding on the part of the teacher that there are explicit benefits (apart from a quiet classroom) in reading to children. For one thing, it will increase their awareness of how stories fit together (story grammars), and how prose is

organized; for another, reading to children demonstrates to them that reading is interesting and stimulating. They organized their classroom to be filled with books, and allowed children to take them home, having tantalized them with reading stories to a crucial point. As Elley and Mangubhai (1981) have demonstrated, this type of book flood experience should have a significant effect on the children's writing skills as well.

Speaking would be the reflex of writing skills. Listening and speaking should as far as possible be combined in a unitary activity, although it is expected that the child will be able to understand more than he will be able to produce, right from the very beginning.

The child will learn to interact with his peers in simple situations as well as with his teacher. It is important that the child learns to speak the language of simple, everyday negotiation on which to build the foundations for English-based groupwork later in the school.

In addition the speaking of English should become a normal part of everyday interaction in the school. Some schools have chosen to have certain days of the week as English days; others have not yet been so structured. Although it might seem natural to the children to try to speak English as far as possible for functional purposes at school, there would have to be a sensitive balance in a school's English policy, so that due respect be paid to visitors from the community who might prefer to be addressed in the local language.

In the beginning the child will be severely constrained in what he is able to say. He will be able to use utterances in highly structured communicative situations, and later will be able to say things that are personally meaningful to him. The development of discourse would start from simple turn taking in question and answer to more extended discourse where the child can control longer sequences, and also is able to ask questions where he does not understand.

Lanham (1984) has argued for the importance of stress and intonation in affecting the intelligibility of South African Black English. It is important that stress and intonation are handled with skill, because they have discourse functions; by and large English prosody cues pragmatic functions through which meaning supplied by lexical semantics and syntactic relations expressed in the discourse, acquire communicative value. Pragmatics provides principled ways for example, of giving illocutionary force to sentences and sentences, that is, showing us how the speaker/writer's intentions are to be taken. In other words, if second language speakers do not develop skill in handling intonation, they might well misinterpret situations: while this is hardly likely to have serious consequences for the junior primary child, it has job-threatening consequences in the workplace. Unfortunately for ESL coursewriters in South Africa, scarcely anything has been documented on the discourse constraints operating in the indigenous African languages, so that contrastive analysis as a point of departure is not really possible at this time.

The teacher will always be slightly at a loss for creating authentic situations for the formal assessment of speaking skills. She will face lots of problems: the length of time to test all her pupils, the subjective nature of testing, and

the paucity of testing methods beyond the oral interview (Henning, 1983). From a communicative teaching point of view the focus in individual skills might have to be jettisoned for a while as one focuses on pairs of children engaged perhaps, in problem-solving dialogues.

The relationship between oral and written work for very young ESL readers is a vexed one, since oral skills are notoriously unstable (Shulz, 1986), and teachers like to have something to hold on to - i.e. sightword flashcards, for example (Don Dallas, personal communication 1988). The question of whether to start with English reading and writing before mother tongue literacy skills have been consolidated is not a trivial one, and is taken up in several of the project final reports (i.e. the Main Report, and the Reasoning Skills Report).

CHAPTER SEVEN

TOWARDS USING ENGLISH AS A MEDIUM OF INSTRUCTION

7.1 INTRODUCTION

Mashishi (1987) has noted that the notion of "English-across-the-curriculum" is essentially a concept that has been developed in the first language context, and that, as yet, we lack any coherent approaches for this approach in discussing English as a medium of instruction (EMI) and English as a vehicle for learning. In this chapter of the report we hope to make a contribution towards the opening of such discussion in the context of black primary education.

The basic premiss of our approach is that there should be no clear distinction in method and content in primary education between English as a subject and English as a medium in content subjects²². If the teacher can realize early enough the purposes to which English will be put and the functions it will serve, an innovative method can be developed. Such a new method will involve a canny grafting of teaching language and conceptual skills simultaneously.

In section 7.2, we make general observations about the difference between learning a second language in a naturalistic setting and a second language by using it as a medium in school, and from this departure point make recommendations to the EMI teacher. An extension of the role of reading specifically, in EMI, will be posited.

In section 7.3, we present a rigorous approach - a cognitive academic language approach - which departs from the distinction which was made in Chapter Five between "basic interactive communicative skills" (BICS) and "cognitive academic language proficiency" (CALP).

²² It should be clearly understood that this is a working assumption for the purposes of getting English to serve or service the curriculum. In the present dispensation English as a subject would still have its specific time apportioned in the curriculum, where the content subjects are still taught through the medium of the mother tongue. The English time would be used in teaching English skills with the specific orientation of introducing cognitive-academic concepts (cf. especially 7.3)

7.2 IDIOSYNCRATIC ASPECTS OF USING ENGLISH AS THE MEDIUM OF INSTRUCTION: LEARNING LANGUAGE MORE NATURALLY

In examining the nature of language learning in so-called "immersion"²³ settings in Canada, with particular reference to oracy skills, Ireland (1987) has concluded that the classroom has little resemblance to the natural setting in which the child learns a first language. The principal differences that he identifies lie in the variety of roles that the teacher and child engage in, compared to the variety of roles the child can experiment with in a naturalistic setting, as well as the variety of language functions the child can experiment with.

The classroom roles are well-defined and stable attributes of the participants in the classroom. Acting in accordance with these roles allows the participants differential access to language functions. So, for example, while it is open to the teacher to command, direct, interrupt and argue with pupils, make jokes and scold, the same is not possible for pupils. The pupils are usually confined to following instructions and answering questions - in general terms responding rather than initiating. These observations, made in a Canadian setting are completely appropriate to our situation (see the description in the School-Based Learning Experiences Final report), and it may be that there are strong constraints generally on the nature of the formal teacher-learner relationship, as well as situation-specific constraints.

Seven functions have been identified by Halliday (1975) for the general use of language. They are the:

- * instrumental function: the use of language to get what you want,
- * regulatory function: the ability to control behaviour, one's own, and that of others, through language,
- * interactive function: the social uses of language,
- * personal function: the creation of individual personality through language,
- * heuristic function: the investigative or learning function,
- * informative function: the communication of meaning, and
- * the imaginative function: fantasy, exploration and creation.

²³ It may be wondered how a comparison can be made between the Canadian and South African language learning situations; in general, the analogy does not work because of social factors, but this analysis examined the texture of classroom language, which in many ways parallels what we have observed. The general line of argument obtains in our situation, and the reader may be helped by conceiving our status quo as a "delayed immersion" setting.

We would want to illustrate the variable use of these functions in different language learning situations:

1. In a typical ESL lesson, the instrumental, regulatory, interactive and perhaps even personal functions may be developed.
2. However, a robust EMI programme might engage the instrumental, regulatory, heuristic, informative and imaginative functions of language.
3. In their most bleak manifestation, the EMI classrooms that we have observed have only engaged the children's informative function, where they are required to give the teacher some indication (however flimsy) that they understand, or at least paying attention to what she is communicating.

At this very simple level of analysis, we may then see that an ESL course is unlikely to prepare the learner for an EMI programme, and that the EMI situations that we have observed are manifestly lacking in developing the full range of language functions of the child, functions that would contribute to genuine learning at the broader conceptual level.

The second major point that Ireland (ibid) makes is that classrooms are not linguistically rich environments in terms of novelty or complexity. In the first place, the linguistic context for events in a classroom is very predictable: the sequence of events is quite repetitious.

In the second place, classroom learning tends to take place in a single mode, the indicative, mainly present, but sometimes past, reflecting the supposed certainty of the knowledge transmitted in the classroom rather than the speculation of thinking. (We return to this point in a slightly different context below). For example, an extremely competent English speaking Std 3 child in the state school system confidently told us that her teacher had said that in history, one has to learn the notes exactly as they are, because they are "facts". In classes abroad Harley and Swain (1984) report that only 4% of the verbs used by "immersion" teachers are in the conditional (hypothetical).

The third instance of a linguistically "impoverished" classroom environment that Ireland refers to is that in the "immersion" situation there are few opportunities for the learners to be obliged to make themselves understood. In the situation he researched it seemed that the pupil needed only utter a couple of disconnected key words and the teacher would reproduce the full and correct answer. In our situation, the teacher is likely to focus strongly on the formal correctness of the answer in the formal class-teaching situation, while many of the (informal) practicalities of the situation (such as "I need a rubber") children deal with in the mother tongue. The point here is that there is not a genuine information gap between teacher and pupil when they happen to use English - indeed, there is a ritualized quality - and hence many of the situations will lack authentic meaning. The final instance that Ireland refers to is that the teacher and pupils have common expectations as to the requirements of classroom tasks. Thus, if the teacher asks a "why?" question, she is

not asking the pupil to construct an original explanation, and the pupil knows that he has to reproduce an answer already rehearsed.

Ireland also refers to the fact that teaching patterns are quite unlike interaction patterns in natural language acquisition settings, and he argues that these patterns may be detrimental to the acquisition of some language skills. Generally, he argues these patterns tend to decrease the amount and complexity of pupils' language. For example, teachers ask pupils questions which require one word answers: in our situation, the teachers try to ameliorate the paucity of the language using opportunities by having the pupils answer "in full sentences", when in fact these are highly unnatural in spontaneous English discourse (and would only really be used when the respondent is giving himself time to think out his answer). Our observations concur with Ireland's that in general pupils are rarely given an opportunity to express their opinion or put forward a point of view at any great length: notwithstanding the sociolinguistic or cultural constraints inherent in the situation, to express one's own opinion requires the pupil draw on a language proficiency that may not be adequate to expressing the niceties of his thinking.

There are some further implications of what we might call "teacher-centred" language use. In the situation we have researched, where the teacher talks all the time, and the pupils talk only in tightly constrained instances, we would argue that the children's language production remains largely imitative. We were very struck by the difference between children's language use in different situations when we did research on Std 3 general science. Transcripts of classroom interaction (whether in English or the mother tongue) reveal that pupils' language seems to be largely imitative, yet when we did individual work with children in their mother tongue, they had a great deal to say for themselves, and were willing to engage in unfamiliar tasks (Macdonald and Letsholo, 1987). For us a concern was that teachers seem not to be interested in what their pupils think (although they are probably typical of a widely held educator's objectivist notion of knowledge (Von Glasersfeld, 1988), and it is possible that the generativity of both their thinking and their language is being inhibited. When the children learn so imitatively in the EMI classroom, they fall prey constantly (and perhaps permanently) to the problem of "inert knowledge" (Whitehead, 1929), in which knowledge becomes compartmentalized and can only be recalled linearly, that is, in the order in which it was learned. (The problem of knowledge integration has been addressed in the Schools-Based Learning Experiences and Reasoning Skills Final reports.)

In attempting to move the typical classroom mode from teacher-centredness to child- or task-centredness, the demands made on the child's generative language skills are considerable. However, with every new concept the teacher can ease the child into independence in assisted learning. In general terms, such task-based organization can start with the teacher organising the learning environment, and guiding and controlling the child both in appropriate language and process skills; the teacher would gradually withdraw as the skills are being progressively mastered by the child. The child would then still have to engage in applications of what he has learned, in order that that which he has learned "may be made his own". This approach will have to be explicated further: we attempt something in this direction in modifying Ireland's recommendations for "immersion" teachers, below.

To look specifically at the nature of content subject teaching in the second language: Ireland (ibid) has this to say about French immersion teaching (p.7-8):

[It] is sometimes described as simply teaching ordinary subject-matter in French. I think this is a misleading description. French immersion involves a complex mixture of teaching both subject-matter and skills in the language at the same time. Consequently, I would argue that French Immersion teachers need, in addition to teaching subject-matter, to make a conscious effort to structure their teaching so as to provide students with opportunities to practice a full range of language skills.

Ireland makes a number of suggestions about how teachers should structure their teaching. We make a number of suggestions of our own below (each of the first five suggestions makes explicit reference to points raised by Ireland):

1. Pupils should have as much opportunity as possible for spontaneous speaking. This means that the situation is carefully tailored so that the pupils get comprehensible input, have monitored practice on speaking, and then go into smaller units for opportunities for spontaneous talk. The children must have time to listen, when they will have to use semantic and discourse cues, but they will have to have a chance to develop their lexical and syntactic repertoire in talking. The implications for classroom management of creating such opportunities are considerable, and resource materials will have to be provided for making the teacher's job more manageable.
2. Teachers should wait for their pupils to formulate their thoughts in the target language. One way of encouraging pupils to do this is to give them something worth talking about. Thus, asking pupils to describe what they see, to explain some phenomenon or to give their opinion on a topic are strategies likely to extend pupils' speech. It is the constant test-like atmosphere, the examination questions and the "guess what's in my head" of the typical classroom which inhibits language use and development. The implications of this suggestion for creating genuine communication are once again considerable for the typical teacher, and she would need considerable support in making this change.
3. Formal instruction in language structures and vocabulary should be closely related to and justified by functional lessons in which the pupils naturally use what has been learned. We can take up the image of "hybrid-teaching" (cf. hybrid testing in Chapter Two above), where one would first teach language as an end, and later use language as a means. This flow can happen within a lesson, for example, one could teach vocabulary or constructions to use in an immediately following observation, demonstration or experiment.
4. The teacher should create situations in which the pupils exercise functions other than responding. It should be possible to create situations in which pupils initiate, evaluate, speculate and command in

ways that are socially acceptable in the classroom. This would involve the developing of specific patterns of group work, in which there are clearly defined roles which pupils can play. Different patterns of group work would become part of subject policy, but a practice that should begin in mother tongue content subjects lessons, so that there is a "classroom cultural" familiarity about them by the time they have to be used in English.

5. The role of teacher talk should be clearly delineated and thus restricted; for example, pupils need instructions and information as well as a model, but they need to take the instruction and information as preparatory to their own work of "making English their own".
6. Close attention should be paid to the nature of the texts that children use for content subject learning. Armbruster and Anderson (1981) have noted that school texts (which are supposed to underpin school instruction) are often "inconsiderate": that is, they require readers to expend extra cognitive effort to compensate for authors' failures to provide adequately structured, coherent and information-appropriate text. Aspects of inconsiderate text include a mismatch between structural signals such as headings and topic sentences, and the content that follows; short choppy sentences that obscure relations among ideas; insufficient information given the probable prior knowledge of readers; irrelevant information which potentially distracts readers, and inadequate contextualisation for difficult vocabulary words. Research done on the Threshold Project (cf. Disparities Final Report) has shown up some of the difficulties of inconsiderateness even in texts that children found the easiest to process. While text linguists may be able to identify instances of inconsiderateness, and write more cohesive and coherent text, it would take genuine creativity to write text that will be able to involve pupils in the ways suggested in 1 to 4 above. The sample materials produced on the project have gone some way to starting the enterprise of writing hybrid, interactional, transitional texts.
7. Part of the job of using EMI is becoming fully literate in the language, and becoming fully literate in the language means being able to access different types of text with ease. Apart from reading for personal growth and pleasure (which probably provides the major motivation for reading), there is also what Chapman (1987) has referred to as reading for use in the world. Part of this world is school, but the larger part, in the end, is being able to communicate to survive as a citizen, and as an adult to be an active, independent learner. The problems of reading textbooks are not restricted to EMI learners; apparently British school children get "register shock" when they have to deal with textbooks for the first time in secondary school. However, it will be necessary for children to read far beyond their school textbooks (however innovative these may be for linguistic and conceptual learning) in order to experience the benefits of incidental learning to consolidate their formal instruction. Children will have to become independent readers who can make good use of higher order reading skills in order to develop their conceptual schemata. As part of an extended reading programme, suitable information texts as well as culturally authentic stories will have to be written, and school and

community libraries developed and managed. The development of such a reading programme may be of incalculable benefit, and perhaps make more difference than the rest of the innovations suggested above.

7.3 A COGNITIVE ACADEMIC LANGUAGE LEARNING APPROACH

An issue which is of interest in our context is the relationship between proficiency and academic achievement. Recent workers in the field (e.g. Olson, 1977; Donaldson, 1978, and Bereiter and Scardamalia, 1982) who are interested in the developmental relation between language and thought find it necessary to distinguish between the processing of language in informal everyday situations, and language processing in most academic situations. In concrete terms it is argued that reading a difficult text or writing an essay makes fundamentally different information processing demands on the individual compared to engaging in, for example, a casual conversation with a friend. In addition, Bereiter and Scardamalia (1983) have suggested that the amount of cognitive involvement in the language activity may vary as a function of the degree of mastery of its constituent skills.

A useful distinction (cf. Chapter Five above) has been drawn (Cummins, 1980) between basic interpersonal communicative skills (BICS) and cognitive academic language learning proficiency (CALP). So for example we are able to distinguish between the information processing demands of engaging in a causal conversation with a friend (BICS) and reading or writing a complex expository text (CALP).

Another useful distinction (cf. Chapter Five above) has been made (Cummins and Swain, 1986) between context-embedded and context-reduced communication. In context-embedded communication the participants can actively negotiate meaning, and the language is supported by a wide range of paralinguistic or situational cues. On the other hand, context-reduced communication relies primarily on linguistic cues to meaning, and may even involve suspending knowledge of the "real" world in order to manipulate the logic of the message. There is an interesting model (developed by Cummins, 1983) which also allows us to represent the degree of cognitive involvement in communicative activities (the first distinction above) as well as the range of contextual support (the second distinction above). It is reproduced below at Figure 7.1 (cf. also 5.1 above).

The horizontal continuum is intended to address the developmental aspects of the degree of active cognitive involvement in the task or activity. So, at an early stage of learning to write for example, nearly all the child's information processing capacity would be taken up with the mechanisms of writing; later the mechanics would be automatized, and the child is able to concentrate on the content and structure of what he is writing. So, as mastery is developed, specific language skills travel from right to left on the horizontal continuum.

The framework below can be applied to language pedagogy. Successful initial reading and writing instruction is embedded in a meaningful communicative context (Smith, 1978) while the later aim is to develop pupils' abilities to manipulate and interpret cognitively demanding, context-reduced text.

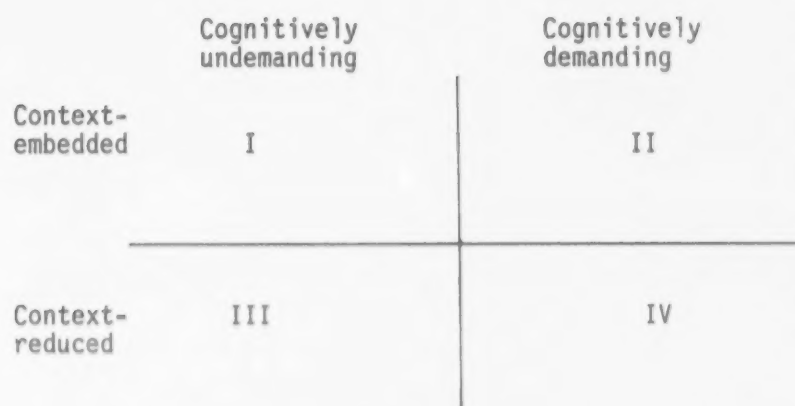


Fig. 7.1: *Range of contextual support and degree of cognitive involvement in communicative activities* (Cummins and Swain, 1986, p.159)

It has been argued by O'Malley (1988) that ESL and bilingual education programmes have failed to meet the needs of L2 pupils insofar as they do not take the learner through from context embedded cognitively undemanding tasks to context-reduced cognitively demanding tasks. Our own analysis of the majority of ESL courses for junior primary children is that their weakness lies precisely in this area; and then, later, the content subject teacher fails to supply any scaffolding for beginning learning in the content subjects (partly because current textbooks fail to recognise this end). We have argued (Macdonald, 1988b) that there should be a natural transition from quadrant I to quadrant IV of the framework presented above. O'Malley (ibid) developed a list of tasks which would occur in the four quadrants, and this list, which I have developed further may be found overleaf at Figure 7.2.

We feel that an analysis such as the one below is very important, because it enables ESL course planners (preparing children for EMI) to go far beyond that which conventional teaching principles would currently predict or support. We would further recommend that ESL specialists could usefully work together with primary education specialists to develop a classification extended from the present one, using information about language functions and structures, and content subject area concepts and typical tasks.

A further recent extension by O'Malley (ibid) has been into the development of a full-blown 'Cognitive Academic Language Learning Approach' (CALLA). This approach is based on the notion of learning strategy instruction, a concept to be evaluated in its own right. It is a pupil-centred approach that helps pupils learn conscious processes and techniques that facilitate the comprehension and retention of new skills and concepts.

Cognitively undemanding

Cognitively demanding

I <i>Context-embedded</i>	II
Language drills with context Face-to face conversation on formulaic lines, later, simple topics Following demonstrated directions Keeping a diary Playing a simple game, where roles and routines are modelled Art, music, physical education, where model has been presented Vocational subjects, e.g. woodwork where skills may still be learned by imitation	Demonstration of a process Content subject explanation with demonstrations Answering higher level questions e.g. temporal sequence, cause-effect relation Making oral presentations Hands-on science activities Maths - computation problems Maths - word problems with concrete objects or pictures Heavily illustrated textbooks Making models, maps, charts
III <i>Context-reduced</i>	IV
Uncontextualised language drills Answering lower level questions Writing answers to lower level questions Predictable telephone conversations Shopping lists, recipes Informal note/message of predictable topic Directions for taking medicine Copying words and sentences Filling out simple forms Writing simple narrative of personal experience (knowledge telling)	Content subject explanation without demonstration Reading comprehension without textual support Reading for information in content subjects e.g. to extract topic or main ideas Maths word problem without illustration (with increasingly difficult syntax) Compositions, essays, on topics immediately outside pupils' experience Research and report writing where different information sources need to be consulted Writing answers to higher level questions Standardized achievement tests

Fig 7.2: *Classification of language and content activities* (extended from O'Malley, 1988)

CALLA is targeted at upper elementary and junior secondary programmes, and we have reason to believe that the approach, based on metacognitive, cognitive and social-affective strategies could and should be modulated to meet the need of younger children and the less sophisticated teachers that we have in our situation. Nevertheless, the rigor of objectives setting and the organization of lessons into distinct and recognizable phases could well give point to lessons that would look rather unlike typical content subject ones.

The appropriate use of the strategies that we can extract from CALLA for use in the junior primary phase would include the following:

1. Preparation: The teacher provides advance organizers - structure the task in terms of the knowledge that children already have.
2. Presentation: The teacher makes the new input comprehensible to the child, showing strategies for selective attention and inferencing.
3. Practice: The teacher or materials structure the task in terms of cognitive strategies within the child's repertoire, including grouping, imagery, making inferences, asking questions for clarification.
4. Evaluation: The teacher encourages the use of emerging metacognitive strategies including self-monitoring with external aids that can be internalized. (Self-monitoring can be used in phase 2 and 3 as well.)
5. Expansion: The children relate and apply new information in their own lives.

This would constitute an attenuated version of the original CALLA lesson plan.

It is considered of primary importance in CALLA that the child is taught to ask questions for self-clarification. "Minority" children tend not to ask such questions, nor even realize that to do so is appropriate behaviour. In our own research, we observed very little question asking - and teachers said that the only way to find out whether the children understood something was to give them a task to do that in some way involved this learning. Jahoda (1986) in his review of cross-cultural developmental psychology cites the asking and answering of questions as culturally sensitive (in Craig's (1985) terms, we would talk of enabling conditions for learning that vary). Adults can ask children questions if they want "genuine information"; however, they can also ask questions which have a command function (e.g. *When are you going to wash your face?*). Children may ask questions for information, if by doing so, they do not appear to be appearing to challenge their superiors. Bruner (1985) would have it that all forms of external negotiation of meaning, all external prods to reflection have the effect of stimulating internal negotiation, reflection and metacognition. What we are leading up to here is the possible path cognition could take from externally regulated agents (teacher, materials) to internal cognition and then monitoring of one's own cognition, which after all must be the simplest form of metacognition. Bruner (ibid) is able to put the developmental process thus: the younger child doesn't know explicitly enough what he knows in order to be able to tell whether he is being consistent in organising information. Chunks of information must become routinized for him to combine them; only then comes

awareness. Self-regulation must become the key to effective learning during the course of development.

We have been at pains to point out that there should be a re-orientation of communicative language teaching towards more cognitive process oriented teaching for the purpose of preparing children for a new medium: we are aware that at the same time we are trying to change the nature of the typical content subject task.

We would recommend that ELT specialists could usefully work together with primary educational specialists to develop a classification extended from the above one, using information about language functions and structures and subject area concepts and typical tasks. But for example, the typical task required in geography should not limit the creative design of intermediate-type tasks; we have in mind particularly the gradient of tasks in early mapwork.

One method that we have used on the Threshold Project to capture the implications of what we have said for learning and teaching is a summary model originally designed by Harlen and Osborne (1985) for trying to capture changes in primary science teaching. Using this model, we designed a "transitional" model for science teaching (which is described in our Standard Three General Science Final Report). Now, in this chapter, in an attempt to summarise what we have been saying about ESL going to EMI, we have drawn two such models, encapsulating what we have in mind.

- * The first one is a model for early ESL learning in the junior primary phase.
- * The second one is a model for the transition to bilingual education which takes place during later junior primary and would be fully adopted in the higher primary phase.

A few words of explanation about the different categories which we use are in order. The view of learning is taken as being paramount, and determining the nature of the rest of the classroom interaction²⁴. The learning experiences refer to hypotheses about the experiences that bring about this learning. The classroom roles and procedures provide a description of the role of the children, the teacher and the resources in bringing about the intended learning experiences. The evaluation criteria are used to evaluate the roles, procedures and outcomes, but we have been particularly concerned to establish the nature of the learning opportunities that have been created for the learners. (See overleaf for the two models.)

²⁴ It is our conviction that a view of learning can itself be an outcome of having experienced a change of teaching resources which mediate a different type of learning. Hence we would not consider it necessary that teachers be able to articulate the underlying principles of the CALLA approach.

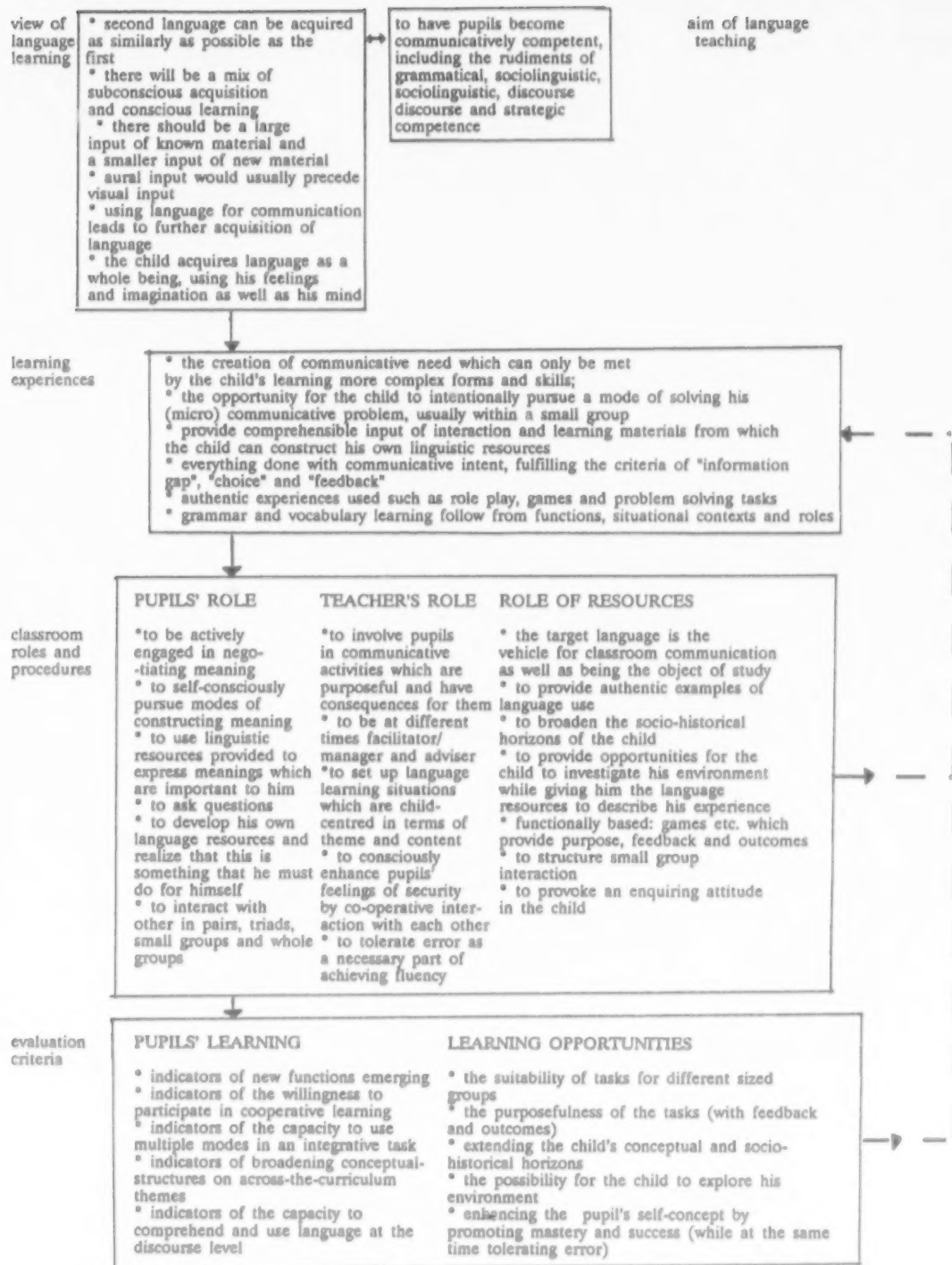


Figure 7.3: A communicative language learning model for lower primary English learning (Macdonald, 1987, adapted)

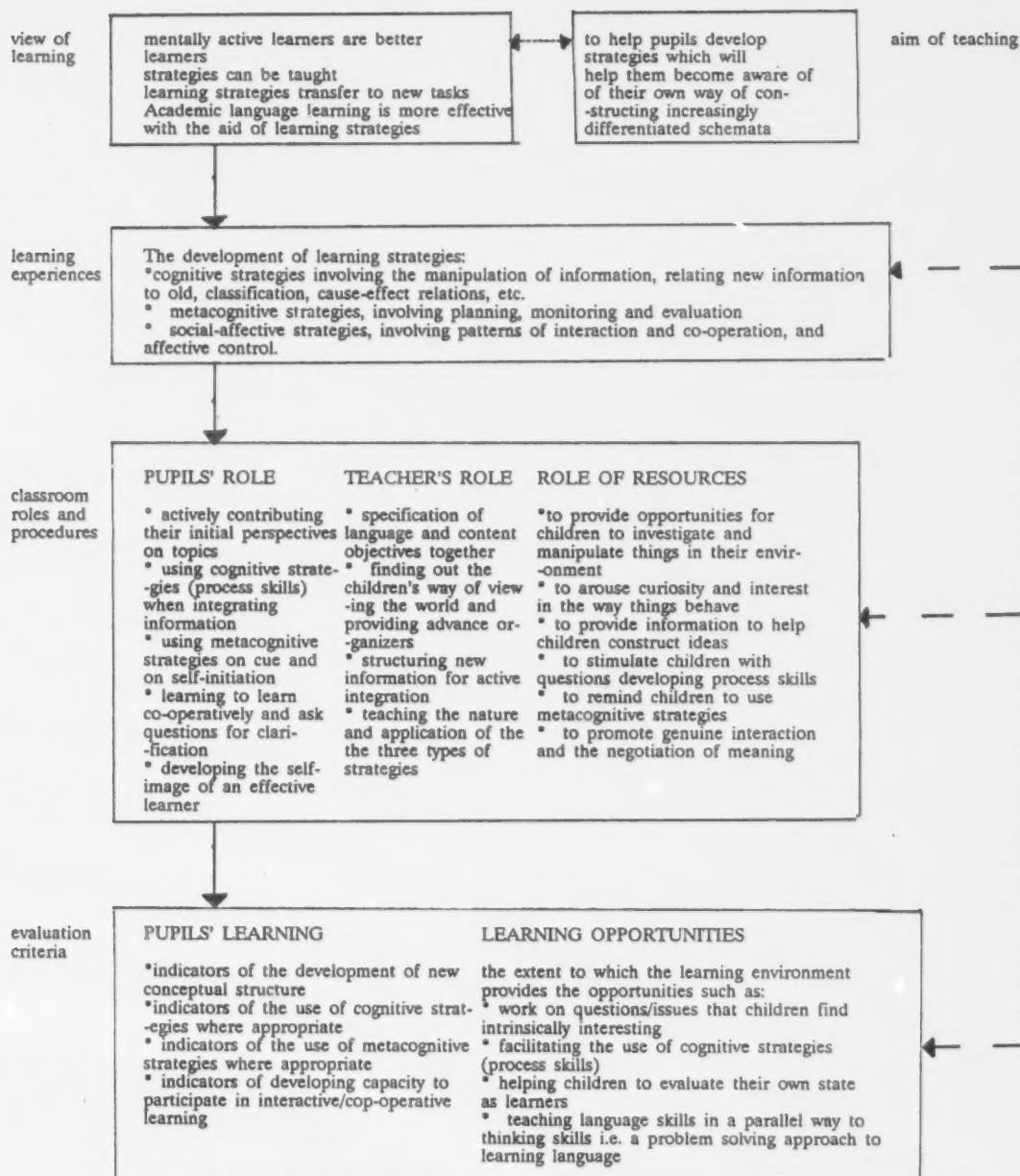


Figure 7.4: A Cognitive Academic Language Learning Approach for Bilingual Primary Education (extrapolated from O'Malley, 1988)

It will be seen from the models that we consider communicative language learning as something that will gradually come to be replaced by cognitive academic language learning. The transition from the one to the other should be as gradual as possible, with the focus gradually changing from context-embedded face to face interaction to context-reduced task-oriented problem solving. The intricacies of drawing out all the relationships between Figure 7.2 on the one hand and Figures 7.3 and 7.4 on the other should yield a rich description for course writers. There remains a considerable challenge for local course-writing, which shows a marked conservatism as evidenced by current materials. The nature of the course will be determined in part by the language policy, and we turn to a discussion of this in the next chapter.

CHAPTER EIGHT

EDUCATIONAL POLICY AND THE CURRICULUM

8.1. INTRODUCTION²⁵

Educational reforms are so intimately connected with problems of race, nationality, religious ideals etc, that they are the main problem of democratic government, and not matters of narrow professional significance. However, policy per se, as a plan of action and a statement of aims and ideals is usually formulated by policy makers who may be more or less aware of the extent to which their preconceptions and values are literally inscribed in their work. An educational policy which deals with which languages should be taught as well as when they should be introduced will reveal both present and future conceptions of the relationship between language and society.

Policy makers, however well-intentioned, are likely to make the most effective decisions, if they do not restrict themselves to their particular professional expertise, but consult with and negotiate with the schools and their personnel, as well as the wider community. So, creating an acceptable educational policy in a heterogeneous society such as South Africa is in principle a demanding task quite aside from the exigencies of the actual situation.

8.2. AN OVERVIEW OF LANGUAGE POLICY HISTORY

It is constructive to look at the history of language policy if we are not to be condemned to making the same mistakes in current and future initiatives in the same arena. Hartshorne (1987) clearly chronicles the nature of the relationship between language policy in education and the dominant political ideology; he sees the policy which dictates the nature of education as being subject to the ideology of the state.

While the policy of segregation in education in South Africa has a long-standing history (Molteno, 1984), the issue of the medium of instruction only became salient when white political groups recognized black education as a potentially powerful sphere of influence. The influence of English (especially in the Cape and Natal) was seen, soon after the Nationalist Party took office, to be less and less desirable, and by a series of steps the use of Afrikaans and the mother tongue was increasingly fostered. The Department of Bantu Education, following the tabling of the Eiselen Report in 1955, decided to try to ensure the status of Afrikaans by making it and English joint media of instruction in the secondary school, following eight years of mother tongue instruction in the primary phase.

Two decades of dissatisfaction then ensued, during which some alterations in

²⁵ Much of what is discussed in this chapter has been integrated from a Threshold Project Office Report by Burroughs (1989).

policy were made, which, being imperfectly thought through, simply served to exacerbate the dissatisfaction in the community. So, by 1975, a complex situation obtained. Standard Five pupils in Bantu Education were to write their public examinations as follows: mathematics and social studies in Afrikaans, science and "practical" subjects in English, and religious education in the mother tongue. The two official languages were introduced as media of instruction that same year for Standard Five. (On the other hand, pupils in self-governing Transkei were using English as the sole medium of instruction from Standard Three, a situation which other homeland departments aspired to.)

The uncompromising stance of the Department of Bantu Education, matched by increasing militancy amongst pupils was bound to lead to confrontation: June 16, 1976 marked the start of unrest that plunged the entire country into violence. It was soon conceded that a single medium of instruction, chosen by the community, could be used. Statistics reveal that within two years, the overwhelming majority of pupils were being taught in English. Six years after the Soweto uprisings, the Department of Education and Training (DET, formerly Bantu Education) formally accepted that either official language could be introduced as the medium of instruction from Standard Three. This was despite the recommendations of the De Lange Commission (HSRC, 1981) for flexibility in language medium legislation throughout the course of schooling.

Since the various changes in policy described above were presented as educational 'reform' proposals whereas they were clearly based on language politics and other political considerations, educational reform in South Africa emanating solely or mainly from the authorities will meet with skepticism and varying degrees of hostility.

The language for education is seen unequivocally by black people as being English, and middle class black people have supported the supremacy of English as both the lingua franca and the language of the future that will displace others. However, as Alexander (1989) points out, the pre-eminence of English might only be a transitional phase before the value of the indigenous languages is once again realized. The dominance of standard English is also seen as questionable, and Alexander suggests that a less purist view of other dialects will have to be adopted.

There is the delicate question (perhaps in the South Africa of the future) of whether the parents will choose the L1 or L2 as the language medium. While larger economic considerations might dictate the need for a (second) "language of wider communication", considerations of cultural identity might lead to a desire for the use of L1. However, use of the L1 in school is not sufficient to preserve the larger culture, and individuals are caught in the dilemma of having to oppose their right to cultural freedom with the right of their ethnic group to cultural survival. Mackey (1984) stresses the right of parents to understand the options open to them and the implications of these options. It may be that no single model would suffice to meet the considered needs of different communities, and that multiple models should be developed.

Notwithstanding the fact that language policy should be decided in consultation with the people concerned, it should also be decided on the basis of informed awareness as far as possible. In the following section, we try to give a brief

analysis of factors that have been identified as affecting the success of bilingual programmes.

8.3. FACTORS AFFECTING THE SUCCESS OF BILINGUAL PRACTICES

A framework for analyzing different policies has been developed by Phillipson, Skutnabb-Kangas and Africa (1986). This framework is useful insofar as it demonstrates the broad domain over which relevant questions would range, viz. questions relating to organisational goals, learner-related affective factors, and linguistic, cognitive, pedagogical and social factors related both to the first and second language. Covering these four broad ranges of factors Phillipson *et al* consider a series of sixteen points that will help predict whether a policy will have a low or a high degree of success. They regard South African black education as having a "low degree of success". A summary of their points with our own interpretation is presented below.

a. *Organisational goals*

1. Alternate programmes: ideally school and communities should be able to choose when and how they would change the medium of instruction. A mixture of schools, some only English medium, some having a gradual transition would offer a small range of choice.
2. Placement in relation to the knowledge of the medium of instruction: here the natural heterogeneity that would occur in an open society would ease the situation, since children would be able to make a different and varied contribution.
3. The bilingual competence and well-trainedness of the teachers: ideally teachers who understand the mother tongue of the children, but who are also competent in English would be required. There should also be a match between the methods propounded by the teacher training institutions and the physical resources (e.g. small classes, material resources) necessary for their implementation.
4. The availability of bilingual materials in the schools: the idea here is that if the child could consult materials in one language this would facilitate his understanding of equivalent materials in the other language. No such materials currently exist here, and they may well be looked upon as a wasteful extravagance.
5. Appropriate cultural content in the materials: here the cultural relativists would have the learners learning from materials firmly entrenched in the cultural status quo, while our own position would be that materials should initially be located in the child's lived-in-world, while slowly and sensitively broadening out to enable the child eventually to participate in the broader, open society. Familiar images and images of changes thus both have their role.

b. *Learner-based affective variables*

6. Children functioning with low levels of anxiety: according to Phillipson *et al* low levels of anxiety associated with a supportive learning environment and a non-authoritarian teaching style are associated with success. However, it would seem to us that this is a eurocentric point of view, which might not be supported for example in the Japanese educational system. While we have seen evidence of a change to a more child-centred affective style on the part of junior teachers in Bophuthatswana, this style falls away by Standard Three and is replaced by the more traditional authoritarian styles that characterize other Southern African situations. In our School-Based Learning Experiences final report, we withheld judgement on the motivational-affective system operating in the primary schools, suggesting that further psycho-ethnographic work be conducted on this.
7. Learners displaying high levels of internal motivation: Phillipson *et al* claim that high levels of internal motivation are maintained when learners are not obliged to use the L2. Broadening this notion we would conceive of high motivation operating where children have a clear ideas of the benefits of education in both the L1 and L2, where both are held in high esteem in the wider community.
8. Learners displaying a high degree of self-confidence: one of the factors here is that learners should have a genuine chance of succeeding in school; it is related to favourable teachers expectations and respect for the child's mother tongue. The phenomenally high failure rate, the ambiguous attitude towards the mother tongue, and the teachers' low expectations of their children (cf. The School-Based Learning Experiences final report) would militate against the children's developing self-confidence.

c. *First language related linguistic, cognitive, pedagogical and social factors*

9. Adequate linguistic development in the first language: this would be facilitated if there is depth and range both in the school language courses as well as the quality of literary works in the broader culture (cf. the notion of the interdependence hypothesis in previous chapters). A close analysis of a prescribed Std 5 reader (Lee, Lesele and Snyman, 1986) indicates that the narrative structure is not developed with the same explicitness in traditional stories when compared to English ones, and that the thinness of the material compared to an L2 anthology at the same standard is striking. Developing a sophisticated language arts programme would involve expertise which is currently probably not to be found amongst local educationists/authors.
10. The availability of relevant, cognitively demanding subject matter: sufficient, cognitively demanding subject matter is necessary to promote literacy and conceptual skills that could readily be transferred to the

second language (assuming a common underlying proficiency, Cummins and Swain, 1986). Points made at 9 above are apposite here; currently the only cognitively demanding material that is available is in the L₂ material.

11. Opportunity to develop the first language outside of school in linguistically demanding formal contexts: on Phillipson's *et al* account, it would seem sufficient that the learner experiences his mother tongue in his immediate environment (as many children in South Africa do). However, the language would seem to be used in relatively undemanding conversational contexts (BICS). Material presenting the more demanding, context-reduced, uses of language such as in newspapers, cross-word puzzles and educational games are in short supply.
 12. Second language teaching supporting the development of the first language: what is in mind here is that the child should be in a situation of additive bilingualism, with both languages having community and academic support. The ambivalence bred by the original Bantu Education policies, together with children's isolation from authentic L₂ contexts means that something more like subtractive bilingualism actually obtains.
- d. *Second language related factors*
13. The adequacy of the pupils' second language: basic research done on the Threshold Project (cf. the first section of this report) reveals the inadequacy of the development, especially prior to the medium change. Improvement in the situation would depend on additional time being devoted to English, better materials in general being developed and used, and teachers' personal English competence being improved.
 14. Adapting of L₂ input to pupils' L₂ level: when English becomes the medium of instruction in Standard Three, all the children are poorly placed in relation to the considerable demands of English. One thing which could partially alleviate the situation would be to replace the anachronistic textbooks with hybrid text-workbooks which cater, by careful use of linguistic structure and graphic support, to the child's precarious grasp of the L₂, and in time bring him to the position of being able to deal with more orthodox texts. Another factor at issue here is the difficulty the teachers, being non-mother tongue speakers of English themselves, find with explaining content-subject concepts: only improving the teachers' overall proficiency in the language will help here.
 15. Practising the second language in a peer group context: the current socio-political dispensation in the country prevents the vast majority of children from having spontaneous interaction with English-speaking children of their own age. The normal predisposition of pre-adolescent children towards naturalistic L₂ acquisition is thus by-passed.
 16. Exposure to native speaker second language speakers in linguistically demanding situations: small children are unlikely to have these opportunities, while once they enter the workforce, the exigencies of the situation will simply be forced upon them.

A factor which cross-classifies with the whole of the above analysis is the societal goal of the language policy. While the explicit goal in the past forty years would have been the promotion of different nationalisms, the pre-eminent goal of preserving Afrikaans and Afrikanerdom has had the effect of marginalising all (but the English-speaking white) groups. In effect bilingualism is an end which cannot unambivalently be endorsed by the majority of the black community, therefore reducing the possibility of developing an effective bilingual education policy at the present time.

8.4. BILINGUAL EDUCATION MODELS

Five models of bilingual education may be distinguished: we describe each very briefly below.

The first is commonly called the immersion model in which children are taught in their L2, either from the beginning of school, or from later on. This model is classically exemplified in Canadian primary education, where middle-class English speaking parents have been keen for their children to learn through the medium of French. A large number of variations on this basic model have been developed and has provided a rich ground for ongoing research (cf. Stern, 1983). In a quite different context, Anglophone African countries have adopted English as their medium of instruction from early in the primary school, and this policy, designed to enhance national unity, has by and large been a failure (Munungwe, 1982). In the second situation, the reasons for failure have been that the African children do not come from literate backgrounds, and that there is not parental and cultural-environmental support for learning the L2. This model has been called "Straight for English" in the African context, and has found support amongst urban black South Africans (Kotze and Southey, 1989). It has been discussed further in the Consolidated Main Report of the project.

The second bilingual education model we have termed the "deep end" model, typified by the South African experience of getting primary school children to learn English as a second language and then to abruptly change all their learning to using English as the medium. The ramifications of this policy are of course the subject matter of all the Threshold Project research.

The third bilingual education model may be termed the gradual transition model; here the change from the L1 to the L2 as medium of instruction is made gradually over a period of years. This policy most generally prevails in Anglophone Africa (Hawes, 1979). The clearest example of the success of such a model has been found in an American Navajo-English Bilingual Elementary School (Vorih and Rosier, 1978). A salient point in this extended research was that while initially children appear to learn more quickly in an ESL situation, longer term gains in English are made in a gradual transition bilingual programme.

The fourth bilingual education model could be termed the dual medium model, which does not currently appear to be policy anywhere, but which, rather, functions as the de facto situation where teachers and pupils cannot deal with the L2 as the medium of instruction.

The fifth bilingual education model is the submersion model, the classical situation in which an immigrant child might find himself on first going to school in his newly adopted country. In the United States, in a school where more than 10% of the children are in such a situation (i.e. speaking the same L2), mother tongue instruction must be provided by the school.

The model which we would consider the fairest, and with the greatest likelihood of success is the gradual transition model. Our justification for this choice include the following factors:

1. This model would ensure that the current junior primary curriculum is closely scrutinised in terms of coherence and continuity; it is true, however, that short-term curriculum planning would become quite intricate.
2. Implementation of such a policy might be complicated, but there should be real gains as junior primary teachers, previously only faced with the challenges of English as a subject in the classroom, now would be faced with the challenge of teaching English that has authentic consequences in the classroom. This should provide a real opportunity for positive growth in the junior primary teachers' English competence, a prerequisite for long-term effective change in education.
3. The children's learning task would appear to become more complex in the short term, but the traumatically charged experience of the complete change will be completely obviated, and we would predict that the drop-out rate would decrease.

If any education department decided to opt for "the gradual transition" policy then a number of choices would have to be immediately considered:

1. The choice or development of an effective mother tongue literacy programme would be a priority. An independent evaluation of the course Breakthrough to Literacy is clearly indicated, since this course has been the cornerstone of innovation in both the Bophuthatswana and Venda Primary Education Upgrading Project.
2. The choice or development of English courses that have a trade-off between efficacy in the hands of a teacher and the amount of training required for their use. Such English courses would probably be such that a full-blown communicative approach is catered for, but have features that a more teacher-centred teacher would be able to use as an alternative.
3. The choice of when to start the transition (perhaps Grade 2 or Std 1) and when to have it complete (perhaps Std 3 or Std 4).
4. The determining of the order in which subjects should be transferred to English: this decision could rest on such principles as:
 - * whether the subject is principally experientially based (like movement education or science) or cognitively based (as mathematics soon becomes);

- * whether the content is close to the child's experience or remote from it, through each standard;
 - * whether the mother tongue has sufficient terminology to carry the subject through to the later stages of the transition. (O'Malley's (ibid) work in the intrinsic ordering of content subjects into English would provide a valuable springboard for discussion.)
5. The curriculum would have to be very carefully planned in such a way that in the year that a particular subject is being transferred, the mother tongue (subject) materials could lend support to the concepts being learned in English, while at the same time, the English (subject) materials could be preparing the ground linguistically and conceptually for the changeover of the subjects to English the following year. Hence, there is likely to be a need for a carefully tailored, but not absolutely constrained, general curriculum.

In conclusion, in the light of the remarks that were made at the beginning of this chapter about language policy, we would urge careful consideration by policy makers, and genuine negotiation of options with the communities in which these policies are to be exercised. The policy of multiple models should not be ruled out.

CHAPTER NINE

IMPLICATIONS FOR TEACHER EDUCATION

9.1. INTRODUCTION

In this short chapter we shall be trying to draw together some of the implications of what we have observed, and proposed, for teacher education. This may be discussed under four sections: firstly the nature of change in education systems as a whole, the nature of effective in-service education, improving the teacher's personal control of English, and finally, working towards a change of teaching style in the classroom. The guiding assumption under the whole of the following discussion is that *changes in teacher education are a necessary but not sufficient condition of change in the educational system as a whole.*

9.2. THE NATURE OF CHANGE IN EDUCATION SYSTEMS AS A WHOLE

This analysis is based on the work of Beeby (1966,1980,1986), who holds that there are four stages in the growth of a primary school system. These stages are set out in Figure 9.1 below.

The dame school stage may for our purposes be ignored. The development from the beginning of Stage II (formalism) to the end of Stage IV (meaning) can be seen to occur at three levels:

- * The teachers become better educated and more fully trained;
- * Teaching becomes less rigid, narrow, and stereotyped and less dependent on mass methods of instruction and memorisation; and
- * The links between symbols and their meaning become stronger and wider, more attention is given to the abilities and needs of individuals, and pupils are encouraged to solve problems and think for themselves.

The essence is, of course, a change in the quality of classroom work.

It would not be fair to talk of an education system such as black education as if all parts of it are at the same stage. Beeby sees the possibility that the most able teachers might be at a full stage ahead of the least able teachers. In our estimation, we would put those parts of black education which we have seen between Stages II and III (cf. Macdonald and Metrowich, 1985 for a detailed description in this regard).

Beeby would also have it that (apart from Stage 1) stages cannot be skipped, although with insight, perhaps the duration of the stage can be shortened: he does make the disclaimer though, that it remains to be seen whether any of the new technologies, such as mastery learning or the use of computers in schools, will enable a stage to be skipped. The appropriacy of these "technologies", as well as their feasibility in any particular context of innovation is a point for

<i>Stage</i>	<i>Teachers</i>	<i>Characteristics</i>
1.Dame school	Ill-educated untrained	Unorganized, relatively meaningless symbols; very narrow subject content -three R's; very low standards; memorisation all important
2.Formalism	Ill-educated, trained	Highly organized; symbols with limited meaning; rigid syllabus; emphasis on three R's; rigid methods - "one best way"; one textbook; external examinations; inspection stressed; discipline tight and external; memorisation heavily stressed; emotional life largely ignored.
3.Transition	Better- educated, trained	Roughly the same goals as stage 2, but more efficiently achieved; more emphasis on meaning, but still rather "thin" and formal; syllabus and textbooks rather restrictive, but teachers hesitate to use greater freedom; final leaving examination often restricts experimentation; little in classroom to cater for emotional and creative life of child.
4.Meaning	Well-educated, well-trained	Meaning and understanding stressed; somewhat wider curricula, variety of content and methods; individual differences catered for; activity methods, problem solving, and creativity; internal tests; relaxed and positive discipline; emotional and aesthetic life, as well as intellectual; closer relations with community; better buildings and equipment essential.

Figure 9.1 Stages in the growth of a primary school system (Beeby, 1986, p. 38)

debate. There seems to be common consensus that computers are not economically possible in black state education in South Africa because of the large numbers of pupils involved. To our knowledge mastery learning approaches have not yet been evolved for primary education, although a pilot project involving criterion-referenced instruction (Mager and Pipe, 1989) may soon be attempted in a Swaziland primary school (Kotze, 1989, personal communication).

Most of the projects that Beeby has been involved with on behalf of the World Bank have been with school systems at the upper levels of Stage II or the lower levels of Stage III. This kind of development - through Stage III - Beeby (ibid,

p.39) sees as relatively unproblematic, "because teachers only have to be helped to do better the things that they have been doing poorly".

However, it is at the top level of stage III and in attempting to make the transition from Stage III to stage IV that most projects fail. The resistance comes because the move from Stage III to Stage IV means breaking with tradition and accepting new objectives and criteria of excellence. Teachers must make radical changes in attitude and take much more individual responsibility: this is difficult for teachers and administrators whose only experience has been in very routine-oriented and authoritative systems.

We need to work out what this position or claim means for development in the Southern African situation. Questions arise for example as to where we would place communicatively-based ESL teaching and the CALLA approach. It seems that these two approaches would have elements of Stage IV in them, for example,

"meaning and understanding stressed"
"activity methods, problem solving".

However, these approaches could be tailored so that they are "highly organised" and with relatively "rigid methods" (II-III). We have in mind here that aspects of the PEUP approach have been rigidly implemented.

In any event, the teachers' conception of the innovation will affect what happens in the classroom. In the School-Based Learning Experiences final report we discussed how the classical concept of "child-centredness" had been adapted in the curriculum innovation of the Primary Education Upgrading Project. One of the cornerstones of child-centredness in innovation was Breakthrough to Tswana, Venda, etc. This course was originally developed in Great Britain, and in its adapted form it is much less complex for the local teacher to manage than the original was. However, the acceptance of Breakthrough and its particular forms of implementation is the clearest case study we have of the acceptability of an approach that has strong Stage IV characteristics.

However, in the School-Based Learning Experiences report, we also refer to the rapid attrition of the child-centred, ability group approach as the curriculum becomes more demanding in terms of the material resources which are required, as well as the changing developmental role of the child. The third constraint that has put paid entirely to the use of child-centredness in the higher primary would seem to be the lack of English proficiency of the pupils, who are quite unable to "negotiate" the simplest concepts in English.

An aggravating factor in the attrition of child-centredness is the radical discontinuity between the junior and senior primary syllabi, so that children in Standard Three are swamped with a veritable deluge of unconnected facts, embodied for the first time in content subject texts. The need for a development of a coherent curriculum and materials that are likely to facilitate more integrative learning (Ausubel, 1985) may well be the most urgent need we have to face: it is more important to make learning meaningful and integrated with children's previously completed learning than the language that children are learning through at that moment. Alienation from the processes of learning can be achieved through either the first or the second language.

The limiting constraint on the educational system moving through Beeby's stages is seen to be the teachers (although obviously, financial, material and political constraints will also operate). Apart from the teacher's inherent ability and adaptability, there are various extrinsic reasons why the teacher's task may be hindered. Beeby includes the following as the dominant extrinsic factors:

- * the lack of libraries and of the skill in using them - so it is safer to stay within the confines of the textbook (we look at this at 9.3. below),
- * lack of strong administrative support,
- * lack of moral support where the innovation initiative is not broadly-based and -backed, and finally,
- * professional isolation in the classroom, a quality peculiar to education.

Each of these factors requires serious consideration in present curriculum revision initiatives.

9.3 SOME OBSERVATIONS ON EFFECTIVE IN-SERVICE EDUCATION

It seems pretentious to claim to understand the nature of effective in-service education when so many well-meaning initiatives have failed over the last decade. However, once again, we are able to combine the insights of Beeby with our own observations over the last six years.

The initial training on new materials and new approaches or methods should be done with the "trainers" (whoever they may be), on their own, and not with the teachers. In an authoritative system, there is much to be lost by making the teachers think that the trainer (adviser/education officer) only knows as much as she does. But the training given to the trainers should be as rich and comprehensive as possible, because as a consequence of working in an authoritative system, they are unlikely - even unwilling - to transmit the full extent of their insights and skills gained to their trainees.

Hawes (1979) talks about the critical role difference between the curriculum supervisor ("mobile teacher trainer", "curriculum implementer", what we have called "trainer") and the inspector. He feels that even a "sympathetic" inspector cannot, by virtue of his other roles, get close to a teacher in a supervisory function. (The distinction between line and management functions tends to collapse when resources are short.) Rather, he sees the need for two separate cadres of professionals to work hand-in-hand in different aspects of innovation.

The appropriate *processes* of teacher education are commonly debated: at our stage of development, there seems to be little doubt about the required focus of both pre- and in-service work, and this is on hands-on experience with

courses that are being developed, or already accredited as effective for developing EMI. However, it is not sufficient for a teacher to have experience with a few model lessons taken from a course: this is not sufficient to prepare them for the unforeseen problems of a full year's teaching.

The importance of experiencing the course should not be underestimated: the first, most obvious reason is that teachers like to learn from each other in context, by modelling and imitation. However, there is a deeper cognitive reason. With teachers of limited language proficiency themselves, it is often difficult to teach them about rules for generating complex strategies (both for teaching and for using the language). In other words, one doesn't teach teachers new rules of task performance, but they acquire them. One may best promote genuine learning in a task domain where the rule systems are too complex to teach, by promoting self-regulatory functions (i.e. checking, planning, monitoring, evaluating and revising), that support rule learning by activity. If this conception of teaching primary teachers is adhered to, it goes without saying that the writers and trainers should have a very clear idea of their underlying principles, and then they have to develop a series of tasks for the teachers to grasp implicitly - and later, more explicitly - what it is they are trying to achieve.

The teachers should receive training as a cohort, so that they can give each other professional support, sharing materials and ways of obviating difficulties. Then, having received an initial period of hands-on training, should receive follow-up advisory support ("in-school work") in the school. The advisory work should be in small doses, spread over the course of several years. Beeby says that "skipping in follow-up services is the most common and, in the end, the most wasteful reason that large projects fail." His advice is practical and perturbing: if the country can't afford a follow-up service for a radical change, then a less ambitious form of change must be considered.

Research which was conducted on the TOAM Computer Assisted Instruction (CAARP) Project (1984) in Soweto led to a deeper understanding of the significance of in-school work - i.e. advisory support (Macdonald and Metrowich, *ibid*, p.40-41):

1. It provides a subtle pressure on the teacher to use the new materials and to continue to use them.
2. It allows project team members to communicate with the principal and give regular feedback on the progress of both teachers and pupils.
3. The adviser gives guidance where the teacher has general difficulties or problems.
4. The adviser can identify where the teacher does not understand the new materials [...]
5. The adviser can offer advice on problems the teacher herself identifies.
6. The adviser can show the teacher how to diagnose children's conceptual errors as they arise and offer suggestions for remediation.
7. The adviser, from helping groups of children, may identify common problems indicating areas for future remedial class teaching by the teacher.

This analysis was given in the context of a research and development project. Given that new materials are going to have to be written by nearly all the publishers for the new junior primary English as a medium of instruction syllabus, these observations we would take as completely apposite to the current situation. The "in-school" model such as suggested above allows the purveyor to build constructive relationships within the school hierarchy, while at the same time monitoring the usability of the materials and the effort/efficacy ratio of the teachers' work. This type of information will be invaluable in choosing between EMI courses "that have a trade-off between efficacy in the hands of the teacher and the amount of training required for their use" (Macdonald, 1989, p.10).

Junior primary teachers, who are generally not subject specialist teachers, have to be able to handle the whole range of subjects. However, they may not be able to handle innovation in every one of them at the same time. Hence we may have to make a difficult choice about which subject to upgrade first - in our circumstances, the obvious contenders for urgent radical innovation are English (as-a-medium) or mathematics. There is another option which might be considered, and that is to get junior primary teachers to specialize, so that teachers could perhaps receive further education in two subjects only. The notion that junior primary teachers should be class teachers might be unduly eurocentric, since the children are used to multiple caretakers from early on in life.

Another important factor to be considered in planning is the time frame for innovation: Beeby would have it that a genuinely new curriculum may take from ten to fifteen years to become firmly established. In the PEUP, institutionalized change in 700 schools was achieved in slightly less than a decade, but change is considered as an ongoing process. Furthermore, in the School-Based Learning Experiences final report, it was suggested that the problems surrounding the medium change had not yet been adequately addressed in the PEUP, and by implication, elsewhere. Of critical importance is the need for change to be institutionalized: by this we mean that it becomes the "accepted way of doing things", rather than being canonized in departmental policy documents.

To turn now from process to *content*. We must make reference to an important aspect of innovation which involves the teacher in a broader professional role than simply the transmitter of information. Part of making children literate in the strong sense, is to have them develop reading as a natural part of their life. While the practices of literacy are not yet rooted in the community, the school is going to have to take responsibility for developing literacy. There are two basic assumptions which must then be held (Samuels, 1981): the first is that the school can have a significant impact on the academic achievement of its pupils, and takes responsibility for its own failures and successes. The second assumption that must be held is that most children are capable of mastering the basic academic skills; here no refuge may be found in explanations such as "poor motivation", "lack of readiness" or "inadequate home background conditions".

The kinds of things that would be expected of a teacher in developing a "literature programme" would include (Morrow, op cit) the teacher:

- * being aware of the choice of language schemes and what each one entails;

- * having the administrative support to gather materials representative of literary selection within the ESL scheme, such as the same types of stories and topics;
- * informing the parents about how literature is being used in reading instruction, to heighten their interest and appreciation;
- * reading literature selections from ESL schemes and other books regularly to children, and leading discussion about the stories;
- * planning, establishing and maintaining a classroom library corner;
- * providing recreational reading periods as regular components of the instructional programme in reading;
- * encouraging children to read books and story selections to each other, writing books for the classroom library corner, visiting school and community libraries (sic) often;
- * encouraging respected role models to come to tell stories or read stories to the children;
- * establishing co-operative efforts between home and school that will lead to a systematic, integrated programme for establishing recreational readers, for example by distributing a newsletter to the parents, involving parents in classroom activities, and holding a workshop for parents.

In order to institute such a programme, teachers will need moral support from each other and the community, administrative support within the school, and the explicit support and infrastructural development in the education departments themselves. If the children do not have the opportunities to choose to become voluntary readers, then education will have failed in its fundamental mission. Detailing the components of such a programme is intentionally provocative in the present endemic state of poor resources in black education. However, we have seen the benefits already: the effects of a "bookfull" environment in the IBM Writing to Read System (together with its listening stations) would seem to be a critical feature of this system's remarkable achievement. What starts out as a reading programme will soon show benefits on the children's listening comprehension, their writing, and finally, their speaking ability.

A reading/literacy/literary campaign should become nothing less than a national priority.

9.4. IMPROVING THE TEACHERS' PERSONAL ENGLISH PROFICIENCY

In the course of observations in DET schools, Bophuthatswana, Venda and Lebowa, we have witnessed many English lessons that are full of teacher errors. By this we are referring to variance in the language that could not be accommodated

under the rubric of a non-standard dialect. Furthermore, junior primary teachers are often reluctant to use English in front of other teachers, and might often find difficulty in understanding mother tongue English speakers. The poor English proficiency of many of the teachers has often been advanced as a reason for maintaining the status quo of the language policy. However, it is imperative that the cycle of poor English models - poor learning - poor teaching should be short-circuited, but this process will require genuine creative thinking.

Teachers are very anxious to improve their personal English proficiency (according to research on the Teacher's English Language Improvement Project Johanson 1985), but this is a difficult need to address directly, since teachers are extremely busy people, who by and large experience role strain by virtue of being parents, professional people upgrading their qualifications, and occupying high profile positions in the community. Many of them came through the system of Bantu Education which means that they had insufficient exposure to English in the school situation. They generally read very little that might be regarded as serious literature, and generally only write when this is required for study purposes.

The predicament the country finds itself in with the large scale use of English as the language of wider communication in education, is that there are simply very few mother tongue models to go round. A further exacerbating factor that scarcely needs mentioning is that by and large access to these mother tongue speakers has been limited by legal infrastructure: when a more open society develops, then opportunities for interaction with English speakers will increase, but these opportunities will have to be consciously sought and given a positive value by both first and second language speakers. In the meanwhile, indirect modelling can be given by public media and distance education; however, in this situation, genuine interaction is not possible, and so learning may at best be passive.

Teachers will best learn English by using it themselves in situations that have real consequences, and that is in the classroom. For this reason, we have suggested that teachers be given a chance to use more English by a more open language policy. Teachers will not be bootstrapped into higher level English proficiency by having them continue indefinitely teaching in their mother tongue. However, having said this, a change in policy that is not accompanied by constructive support will surely fail, and therefore as much support as possible should be sought in the informal sector. It may be that English-speakers, whether they be teachers or merely willing to lend their intuitive help, could participate in programmes that would build bridges across the communities. A description of a local initiative in Mamelodi might be instructive: a local private school has launched an outreach programme (with foreign funding) that enables four English speaking teachers full-time to give advice and guidance on English teaching in 36 primary schools. While formal progress may be measured in centimetres at the beginning of such an initiative, mutual understanding and tolerance continues to grow and develop for the serious problems that black primary school teachers face.

9.5 INDUCING TEACHERS TO CHANGE THEIR TEACHING STYLE

The notion of teaching styles has been addressed in great detail as part of the School-Based Learning Experiences Final Report. However, a few additional remarks need to be made that are apposite to the present analysis.

Hawes (1979) identifies two main processes in the task of curriculum implementation: firstly, *changing attitudes*, and secondly, providing the *materials* and *administrative means* to make the curriculum implementation possible. In fact these two aspects are not separate, and indeed, are in a dialectical relationship. By this we mean that the provision of new materials with training may well cause a change of attitude in the teachers which feeds back into the use of their material. In fact, it may be necessary for the teachers to actually use the materials before their attitudes change; however, at the same time teachers must feel that they are part of the innovation process.

Beeby feels that teachers can be encouraged to accept new ideas and practices as their own by involving them through professional organisations in the devising of the programmes and by giving them the freedom to make the practices their own by modifying them to suit their surroundings, and adapting them to their personal styles. However, the modification and adaptation would seem to us to only come as a second stage after teachers have acquainted themselves thoroughly with the new materials; otherwise what may emanate may be the existing programme (the "actual" curriculum) simply with the new name, the teachers having reinterpreted the new task in the terms of the older and more familiar one. Here no real learning and development will take place. However, teachers are not alone in trying to pour new wine into old wineskins; communicative teaching materials themselves have tried to force the teaching of communicative functions into lessons that were originally designed for teaching specific structures.

The possibilities for getting teachers to change their characteristic teaching style has been one of the prime points of focus in the Threshold Project. The reader is referred to the School-Based Learning Experiences final report for an extended discussion, and to the Reasoning Skills final report for a technical discussion.

In summary, in this chapter, we have made the following observations:

- * Innovation in black primary education is located in a system which has elements characteristic of Stage II in Beeby's system.
- * Aspects of desired innovation have the characteristics of Stage IV systems, and therefore on the face of it are doomed to failure; however natural processes occur in which teachers reconstruct the task in terms of what they think is possible, and therefore these aspects may be constructively integrated in innovation.
- * In-service education in an authoritative (or authoritarian) Stage II education system has specific requirements such as training the trainers first, giving the teachers sufficient hands-on training and follow-up support in the school.

- * The process of institutionalizing change is a slow one and may take a decade or more.
- * One of the key elements in change in language policy relates to the teacher's personal language proficiency; teachers have limited opportunities for genuinely productive practice in English, but making them use English which has genuine professional consequences in the classroom may be one way in which we can start off the process of developing language proficiency.
- * The process of curriculum innovation is a dialectic between changing attitudes and supplying new materials; the central task of teachers is to reconstrue the actual teaching/learning task that is developed in a new curriculum in terms of its intrinsic demands, not simply in terms of what they are implicitly used to doing.

CHAPTER TEN

SUMMARY OF RECOMMENDATIONS FOR FURTHER RESEARCH AND DEVELOPMENT

In the introductory chapter to this report, we made it very clear that the reader should not regard the final chapter as the place where he or she may find the main conclusions of the research. *The main conclusions of the research have in fact been scattered through the different chapters* (as indicated), and the purpose of this chapter is simply to draw together threads that have been woven indicating areas for future research and development.

1. The single most important conclusion that we have come up with, based on observation, testing, and a careful reading of the literature, is that a reading, or literature programme, in its broadest sense should be created for black children. Literature has value both as an instructional medium and as a motivational tool, and it is quite simply failing to be cultivated (even though such a cultivation might take a revolution). In Chapter Nine, we referred to Morrow's work on creating literature programmes. What is important in such an enterprise is the development and use of appropriate instructional activities, the re-allocation of material resources, the adequate preparation of teachers, and the fostering of attitudes of mutual support amongst teachers, administrators, and parents. The principles upon which such programmes would be based would include providing easy access to an attractive selection of books, providing for meaningful interaction between the child and the teacher during experiences with books, encouraging active involvement of individual children in these activities, and cultivating the responsiveness that results from practices implied in the first three principles. These principles should apply across programmes that encompass exposure both to mother tongue and English literature. Given the developmental state of the educational system, the school will have to take the primary responsibility in promoting sound literacy practice; however, genuine transactions between the different education departments (for example, to start with, black and white primary teachers meeting together for discussion) should provide a role model for adaption in black education.
2. Related to the development of such school-based programmes should be a similar thrust into the community, to introduce productive preliteracy experiences, for it is these that will most clearly prognosticate success at school. It is not clear that many black parents have any idea of the significance of early preliteracy and literacy experiences. In order for a preschool preliteracy programme to succeed, there have to be material resources, such as books for the parents to read to their children; the resistance of publishers to publishing books in the indigenous languages would seem to indicate that there is not currently such a market; such a market ought to be created, even if it requires extensive literacy campaigns in local communities. Negotiation in the community could at the same time include further in-depth research on the status of the mother tongue as a received written medium for literature in the townships and rural areas (cf. point 6 below).

3. The processes of curriculum development should be seen as continuous and ongoing. One of the ways in which change can be modelled would be the development of a range of English courses - which require different levels of adaptability from the teachers - which should be linked to a range of content subject materials, which are more or less demanding of the teacher. The curriculum should be open enough to allow for a range of interpretations by materials writers. Curriculum developers should be made aware that they are located in a specific social context, and not make false pretences towards being value-free and "scientific".
4. The notion of English as the medium of instruction, with its particular manifestations in Anglophone Africa, should become a subdiscipline in its own right, since it makes specific demands on the teacher, the child, the community, and curriculum and language policy planning.
5. As part of the development of the notion of "English as a medium of instruction" we would recommend the further careful examination of the potential of the CALLA (Cognitive Academic Language Learning) approach. Such an examination would ideally require the joint and simultaneous attention (perhaps a symposium) consisting of cognitive psychologists, text linguists, and master teachers. Perhaps the approach could only be further analyzed within an action research model, with continuous modification of objectives and strategies. In general terms there is also an urgent (but perhaps not prior) need for further research on the process of ESL learning in young learners in developing contexts. As part of the development of a body of knowledge of preparing the child for using English as the medium of instruction (EMI), serious consideration should be given to a comprehensive evaluation of the Bridge to English series, which contains in itself the only real evidence of CALLA-type work in the country. We still need to know a great deal about the Bridge courses: for example, what it takes to implement these courses effectively in terms of manpower and time, in what ways teachers accommodate to them in the short and the medium term, and in what way the current materials could be modified so that they can address history and general science, since these subjects are currently neglected at the expense of mathematics and geography. What also needs to be extracted from the materials-in-action is the implicit theory which informed Professor Lanham's constructions of (language) learning tasks for the children. Further understanding of these courses will extend our knowledge base for the further research and development of other EMI courses. Such courses are going to have to be written for the new syllabi currently being constructed; even if there were not new syllabus on the cards, new courses would have to be written if education departments are serious about addressing the genuine learning needs of the young child.
6. One of the premisses of the discussion on bilingual education is the viability of the Interdependence Hypothesis, i.e. that skills learned in one language may be transferred to another language. If this hypothesis is valid, then it would be of interest to know the level and extent of literacy skills in the mother tongue evidenced by the higher primary phase. One urgent priority is to make sure that early literacy is maximally facilitated - and this should be done through a thorough

appraisal of the remarkable impact that the Breakthrough courses have had. It is our distinct impression from examining the nature of later mother tongue materials, that concerns factors such as speed, accuracy, fluency, comprehension, higher order inferencing skills, etc have never even been identified, let alone fostered. To give one example, one specific reader prescribed for Std 5 in Setswana is a small collection of traditional (short) stories. No indication is given as to how the teacher could use these materials in enhancing language or literature learning skills. On the other hand, the anthologies of English literature prescribed by the DET for Std 5 carry within them demanding tasks, and (in the best instances), state of the art examples of enhancing reading and group discussion skills. The precise role of the mother tongue, if it is to support the development of English skills, needs ongoing negotiation.

7. An area that the current project has not been able to touch on is the status of the child's home language. There is a wide variety of situations here: some children in the urban melting pot are exposed to two or more languages (or dialects thereof) in their homes, and it is possible that they may not have established a language dominance before their parents decide to send them to a specific medium school. The research themes of the STANON (standard and non-standard African language varieties in the urban areas of South Africa) programme at the HSRC will have a great deal to contribute to this area of vital research. Their data should incidentally provide examples of the way that teachers construe the nature of mother tongue learning in the formal situation, data which can be compared with English teaching in the same situation. However, further sociolinguistic research on black South African English per se would also be required: here we have in mind the need for the documentation of typical characteristics of the English of a variety of black speakers, speakers who in their own terms constitute a model for other black speakers. It is our impression from working in black education for six years, that there are a considerable number of features that have become fossilized, and the features should be examined to see whether they may interfere with the effective use of English as the medium of instruction up to the tertiary level. The intention would not be to proscribe features of this variety of English, but rather alert speakers to differences so that they could use different varieties for different purposes.
8. The specifics of language policy in education should be continuously under scrutiny, so that the policy can be in tune with genuine needs of the communities, whether they be rural or urban. In terms of language policy literature, it seems that South African language policy will go through a series of phases: at present English is seen as the language of liberation, whereas perhaps in a decade it will be seen as the language of post-apartheid imperialism, and the status of the indigenous languages will be enhanced. The accessibility of English to the particular school might in the end determine the extent to which the child uses EMI. The spectre of uniformity of policy dictated, as it were, from the top will haunt those who are aware that the learning situations of children are

very different in different parts of the country: what is right for the
goose is not right for the gander.

ADDENDUM

PRINCIPLES IMPLICIT IN THE PROJECT TRIAL MATERIALS

These principles underlay our planning activities, but it will be seen that a number of them arose as a direct result of actually trying to implement what are rather innovative materials. The reader might note that further reference to these materials as well as the materials themselves exist as the second tier of official Threshold Project documents, obtainable from the Human Sciences Research Council.

1. Content

The section of the syllabus that was being used was closely studied, as well as the complete range of prescribed textbooks (General Science and Geography). Other books and media available on the market on the topic were examined. An important consideration was to make the underlying concepts as salient as possible without adding what we considered redundant information.

It is important that everything which the children need to know is actually in the book, for example, central information should not have to be derived from an activity which may not get done. However, activities should always be authentic, in that genuine information is being sought.

It is important that the teacher should carry out the activities/demonstrations beforehand if she is not familiar with them, since she might otherwise embarrass herself in front of the class, should something go amiss. The fact that teachers unashamedly "fake" processes in front of their class, and expect the children to believe in what ought to have happened, might well lead children to learn respect for the teacher rather than respect for science!

2. Learning opportunities

Learning opportunities were considered in the broadest possible terms, namely, any form of information that children might be able to make sense of, whether it be looking at a live specimen, examining a graph, playing a game, etc. Games, which are an uncommon aid by Standard Three should be introduced as part of classwork. For example, a cross-classification game could be introduced by a matching exercise where children could copy the correct pictures into the appropriate cross-classified box. It should not be assumed that children can read instructions for games and actually constitute them.

It was also deemed possible that children at Standard Three level could meaningfully learn factual information when it is presented in a narrative structure.

The range of process skills that was supposed to be inculcated included:

- * observation (comparing for similarities and differences; patterns over time)
- * drawing inferences
- * making predictions (for example, on the basis of past experience)
- * making hypotheses
- * drawing conclusions
- * making simple representations such as drawings, and filling in simple tables

3. Language skills

It was assumed that there is a fruitful place for the judicious use of the mother tongue, for example, as a general overview to a section, or in the quick explanation of a concept during an exposition. Hence the first lesson on plant structure is a lesson in Setswana, and in the teacher's manual indications are given where we thought a concept might need a quick translation.

It was assumed that the language level of the conventional textbook was too difficult, and that therefore the greatest possible attention should be paid to the vocabulary introduced and used, the grammatical constructions used, and the structure of the discourse in which the ideas are presented.

There is a stress on children's being able to actually read their text-workbook with some assistance, rather than having its contents explained to them by the teacher. In other words, the text should not have to be reinterpreted as notes that the teacher writes up on the chalkboard. In order to prevent the teachers from doing this as a matter of course, the text should be compellingly interactive, requiring responses from the pupils in structured activities/"conversations".

Stress is laid on the children's having illustrations or authentic objects when they are being introduced to new vocabulary. (Note that this method of introducing new vocabulary is not always possible in less experientially based subjects such as history.)

As part of language development, a number of exercises of the cloze type were included (that is, every *n*th word deleted), but these proved to be too difficult for the children to do, so we would strongly recommend that the most difficult exercise of this type should be c-items, in which the second half of a word is left out, and the exact number of letter is indicated, for example,
root struc _ _ _ _.

Simple language for negotiation would be required for collaborative groupwork (e.g. games, making posters) which is only to be used to consolidate already learned concepts. Pairwork is a concept that seems to be totally strange to the content subject classroom, so its use would require some teacher re-education. It should not be assumed that children can discuss in groups material that has been explicitly dealt with before; making the language of the concepts "one's own" will have to be a long-term venture which begins in the junior primary and goes on, as a matter of common practice, for years.

The teachers are very dubious about the value of doing "language exercises" per se so wherever possible, these should be made an authentic part of the lesson,

where the teacher can actually see the children learning the language for a direct purpose.

4. Layout and design

It was assumed that realistic and not cartoon illustrations would be the most readily interpretable, as well as being the most acceptable. As far as possible, the drawings should be made according to the same scale. The most minute attention should be given to scientific details of drawings, and if possible, more than one illustration of a phenomenon that may take many forms in real life, is preferable.

A book that is A4 is too large for classrooms where desk space is at a premium. It is assumed that books will be used every lesson, and therefore should have robust covers.

Expository prose (as opposed to text that involves language work or a series of activities) should be presented in an unbroken format, perhaps boxed.

5. Teaching and learning aids

It should not be assumed that teachers would ever provide learning aids for themselves. Hence the idea of a kit that accompanies a particular course should be very seriously entertained: the other viable alternative is that the subject specialist examines the syllabus closely, decides which practical aids are necessary and then sets up a departmental kit which is supplied to each school as a matter of course.

6. Time management

In the science materials, we planned every aspect of the lesson down to the last minute, and gave explicit indications in the teacher's manual. While the teachers could easily keep to these specifications in demonstration lessons, it was much more difficult to do so in the classroom. By and large the lessons we planned were at least 50%-75% too long for actual use in the class, a factor that might decrease with increased familiarity with this type of material. It is not recommended that such prescriptive parameters be included in materials. (The Science Education Project includes in units in their teacher's guides, "about two or three lessons", for example).

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